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ORIGINAL ARTICLES.

THE EQUILIBRIUM BETWEEN INFECTION AND IMMUNITY AS ILLUSTRATED IN THE TONSILLAR CRYPT.[1]

BY JONATHAN WRIGHT, M.D.,

OF NEW YORK.

[From the Throat Department of the Pathological Laboratory of the Manhattan Eye, Ear and Throat Hospital.]

IN a recent publication[2] I have again drawn attention to the object lesson, the illustration, which nature affords us of the conflicts of the animal organism with its environment in the faucial tonsil. Its crypts may be accepted as the counterpart of the laboratory test tube, holding as it does a mixed bacterial culture. Its epithelial lining pervious to dust particles, but impervious under conditions of health to the same-sized bacterial particles is hardly analogous to the vitreous wall of the test-tube, because we must suppose that the bacteria are kept out of the tissues not altogether by mechanical means, but by being annihilated and dissolved as soon as they enter the epithelial layers. How far purely mechanical agents act as protectors to the animal organism it is impossible to say. It is probable they act chiefly in diminishing the dose and retarding the action both of pathogenic bacteria and of their toxins. On various occasions I have attempted to emphasize their importance, but in doing this, care must be taken not to exaggerate it. From the experiments of Goodale and others with colored granules, from my own observations of dust particles passing the epithelial layer in health, and of bacteria passing the epithelial layer in disease, it is evident enough that there must be something beyond mechanical obstruction which, under ordinary conditions of health, keeps the tissue beneath the epithelium free of bacterial life which swarms in some of the crypts on the outer side of the epithelial cells. As I have just intimated, in addition to the epithelial hedge which retards ingress, the various forces which keep the bacteria on the move, the act of deglutition, the excretion of fluids from the surface by osmosis, gravitation itself, all combine to lessen the numbers of germs which remain within the open-mouthed crypts. Yet in sparse numbers they may be seen even on the surface of the tonsils. When we come to study sections falling through the plugged crypts of the tonsil, the sealed flasks of nature's laboratory, then indeed we must realize that all these accessory protective influences are no longer in play, but we have only the mechanical resistance offered by the epithelium.

When we study the epithelium around tuberculous or syphilitic ulcers, when we note that the ephitelium of the tonsillar crypt which contains actinomyces, or even other fungus forms, acts in a peculiar way—becomes granular and proliferates in festoons, we suspect this is the answer to the stimulus of a specific poison. Such is the histological evidence.

Clinically, we know individuals with chronic lacunar tonsillitis, ragged tonsils and plugged crypts, are prone to various indispositions, traceable to this tonsillar condition, but yet it is much more evident they do not all die or even perceptibly influence mortality statistics. After diphtheria the tonsils are still more ragged, and diphtheria bacilli are regularly for prolonged periods denizens of the pharynx. It is said they are found in about one out of ten fairly healthy people. Pyogenic cocci and streptococci are found in larger proportions. It is even known that non-tuberculous people occasionally have tubercle bacilli in the pharynx. I need not repeat more of the clinical side of the problem. It has been too readily accepted as probable, that this malaise and discomfort is due to the absorption of bacteria in the crypts. Yet this cannot be demonstrated histologically until an acute attack of diphtheria or quinsy supervenes, for in quiescent conditions dust particles pass and bacteria do not. When we remember that streptococci are perhaps the most constant, among pathogenic forms of the crypt dwellers, and when from recent researches we gather that their endotoxin is especially active, we may infer whence arises disturbance both local and constitutional in chronic tonsillar diseases. Presumably the ill health of patients with ragged tonsils is due to the absorption, therefore, not of pyogenic cocci, but of their endotoxin, which we may believe has been set free during the process of bacteriolysis within the crypt.

Plainly, as I have said, we are in the presence of some wonderful mechanism of nature, evolved through eons of time and established at the portals of infection by which harmless atoms glide through the stomata of cells or their interstices which are impassable to microphytes. From what follows we may understand how the parasites inimical to the animal perish, but it is not entirely clear why the saprophytes, the harmless bacteria, are not seen passing with the dust particles.

Hitherto the revelations of the antitoxic power of the blood-sera have been insufficient to explain the problem the terms of which I have tried to make plain by what has preceded. That ex-

[1] Read before the Section of Laryngology of the New York Academy of Medicine, February 1, 1905.

[2] Actinomycosis of the Tonsils, with some remarks on the portals of Infection. The American Journal of the Medical Sciences, July, 1904.

plains the nullification of the toxic power of the pathogenic germ, after it passes within the tissues, but it does not explain immunity from infection—to translate literally—the freedom from the carrying in of the germ; that is an entirely distinct thing. It in no way explains the efficiency in conditions of health of the epithelial barrier of the crypts. Without an explanation of that the whole modern theory of immunity is incomplete and unsatisfactory. Even with that it is neither entirely complete nor thoroughly satisfactory. In the title of this paper I have used the word *Immunity* in apposition to *Infection.* As differentiation advances the term immunity is becoming shadowy and ill-defined, but it still possesses enough significance to allow of its use here without obscuring my meaning.

At the forks where the foodway and breathway meet we have a local problem, a local phenomenon which puzzles the clinician and the microscopist, and if it leaves the laboratory bacteriologist complacent it is only because of his limitations. Yet it is from bacteriological research that we receive a hint which renders us hopeful of still further enlightenment.

Recently Pfeiffer in Germany and Bordet in France and their co-workers[1] have more definitely laid down the difference between a bacterial toxin and an endotoxin, pointing out that the former term should be more carefully reserved for use in designating such general phenomena as are exhibited by the diphtheria and the tetanus bacillus in the animal body. Endotoxin on the other hand is the term to apply to that property of pathogenic bacteria, which does not cause the appearance in the animal organism of an anti-endotoxin to counteract its poisonous effects, but does cause the manufacture of a bacteriolysin which dissolves the invading organism. Unfortunately at present workers at these problems are so interested in the beauties of symbols for phenomena they do not understand, that much of the effect of Ehrlich's splendid work is being compromised by the terms of his theory. The receptor and the amboceptor and the haptophore and the complement, a Gothic phantasmagoria with a classic nomenclature, it is to be hoped is a passing madness which will cease when we really know more of the phenomena which it is thought these words explain.

In further distinction to the toxin the endotoxin is a property which it is difficult but not impossible to separate from the bacterial bodies. Now in close juxtaposition to an epithelial cell,[2] as I showed in some recent observations on a case of tonsillar actinomycosis, such as habitually occurs with more common forms in a tonsillar crypt, it exerts a destructive or at least an inimical effect on the vitality of the cell. But at the same time it must, in accord with the researches to which I have referred, produce in the cell a lysin which tends to dissolve the germ. This, while to some extent destructive to the bacterium as it lies within the crypt, must be still more effective when it enters the epithelial hedge. How much influence we must ascribe to autolysis of the bacterium, the crumbling of its protoplasm from old are, the struggle for existence with its antagonists and its congeners, is uncertain.

We see, therefore, how in the throat this bacteriolysis is the most important of adjuvants to the antitoxin of diphtheria, for it is exerted on the bacterium before it enters the circulatory system, while it is still on the surface, and it is probably much more efficient when beneath the epithelial line.

After a recovery from diphtheria, whether through the use of an antitoxin manufactured within the body or without, as Wolff declares: "It is left to the bacteriolytic power of the body to make an end of the infection." Usually, for a longer or shorter time, so far as the tonsillar crypt is concerned, it does not succeed. Sometimes the diphtheria bacillus becomes a permanent dweller in the tonsillar crypt. A truce has been struck, an equilibrium established between the endotoxin and the bacteriolysin. If this is so for the Klebs-Löffler bacillus, which stimulates the animal organism to the production of an antitoxin, how much more important must be that power of the endotoxin which calls forth from adjacent cells, epithelium or leucocytes, a bacteriolysin for the protection of the animal organism against other poisonous parasites in the tonsillar crypts.

The staphylococcus and the streptococcus are more frequent and numerous in the tonsillar crypt than the diphtheria bacillus, and the tubercle bacillus is less frequent but much more deadly. There is no satisfactory proof that the system manufactures an antitoxin to combat these germs when introduced. When they exist in the tonsillar crypt and the host suffers no harm, when it is impossible to detect them passing through the epithelium in health, when, in other words, a general peace reigns between the animal cell and its enemies, we must picture to ourselves that so far as pathogenic germs are concerned an equilibrium exists between infection and immunity, and this tendency to the establishment of an equilibrium is a cardinal doctrine of Spencerian philosophy. Of course this end is not so simply attained as here foreshadowed. It is still too early to speak otherwise than vaguely of it. The virulence of the germ, the fighting powers of the cell decline *pari passu* until something occurs to help one or the other, and then the germ is exterminated or the organism suffers, according to which one has received reinforcements.

1 In the Centralblatt für Bakteriologie, etc. (I. Abth. Originale, Band 37, Heft 2, 1904) the weary reader will find that Wolff has summarized and to some extent added to and elucidated the work of others.

2 I fell into the error of calling the influence which produced the morbid state of the epithelium a toxin, a more distinctive term and more in accord with recent work would have been an endotoxin.

We must realize that the same principle is to be applied to all situations in the animal economy where germs may lodge for a time—the intestinal canal and its adnexa; nay, the apex of the lung and the lymph-nodes as well as the folds of the pharynx.

Since modern research has begun to travel this road we have long since come in full view of the close of the era of exclusive bacterial etiology of disease, and again looms up the importance of that unknown factor which upsets the equilibrium. It may be a freshly virulent germ, or an auxiliary germ, but the presumptive evidence is that it is usually a change of the intrinsic rather than of the specific extrinsic factor.

Returning from the realm of speculation to the concrete problem presented by the tonsillar crypt, the observer familiar with its flora will realize that there is still a very serious element of doubt as to whether it is indeed the bacteriolysin or the mechanical obstruction offered by the epithelium which shields the tissue beneath from invasion. In the previous work to which I have referred, I have suggested that it is some sensitive mechanical arrangement which closes the stomata and interstices of cells to the ingress of bacteria and allows the inorganic particles to pass through, but perhaps this does not help the matter very much. We are indebted to the labors of the workers on the problem of immunity for an explanation why the pathogenic bacteria do not float into the lymph-spaces with the dust, but what of the saprophytes? Does their endotoxin bring forth its response in a bacteriolysin? If so, why? Evolutionary doctrine points out how the hurtful germ came to be kept out, but why are the harmless organisms halted? We have here apparently a break in our chain of circumstantial evidence.

It seems probable from experimentation with various forms of protoplasm, that the animal organism evolves defensive properties to destroy by lysis even comparatively harmless protoplasmic particles, when the system through lack of sufficient excretory power becomes embarrassed by their presence. Thus the constant presence of the protoplasm of so-called harmless bacteria in the tonsillar crypt may evolve a resisting power in the adjacent epithelium, which we may suppose is the equivalent of a bacteriolysis. We are warranted in supposing this is so by the results obtained from injecting into the animal organism repeated doses of the organs, or the leucocytes or erythrocytes of other animals. It is said after one or two injections dissolution of the injected cells takes place, not only within the phagocytes of the host but outside of them, in the plasma of the blood or the lymph.

Wolff's conclusion is "that the bacterial endotoxins form no separate class of poisons with laws especially applying to them, but that the endotoxins are simply albumen of foreign origin, and therefore poisonous like every other foreign albumen." We thus understand how the bacterial protoplasm may excite bacteriolytic ferments in the epithelial cells, irrespective of their specific effect on the animal organism.

There have been some investigations of late which directly support this conclusion. The injection of the *Bacillus prodigiosus*, ordinarily a harmless parasite, for instance[1] at first produced no effect in animals. Repetitions, however, quickly brought about a condition of the system which, if persisted in, resulted in the death of the animal. Now this is the way the animal organism reacts experimentally to the introduction of foreign protoplasm in general. We may suppose then that the same law applies, in the bacteriolytic process, to pathogenic and non-pathogenic germs in the tonsillar crypt.

In what cells of the human organism this chemicobiological process really does go on, remains uncertain. I have assumed that it may proceed in the epithelium or in fact in any of the cells of the body, but if we are limited to Metchnikoff's idea that it is confined to the leucocytes, the subepithelial tonsillar tissue would be *par excellence* the site of such activity, but, as I have said, there are certain phenomena in the behavior of the epithelium, exposed to the bactefial influences of the tonsillar crypt, which influence me strongly in supposing that there also the process is going on. Indeed on reflection that it is the epithelium everywhere which is exposed primarily to the noxious influence of the animal's environment, it would seem the place where we should expect reactions most pronounced in many cases.

As I bring this disquisition to an end, Dr. Theobald Smith's lucid essay[2] comes to hand. The prominence which he gives to the idea of equilibrium falls in so well with the trend of what I have written above and is a so much broader exposé of the standpoint of modern biology in medicine, that I can only refer to it with admiration, without, however, entirely subscribing even to his very modest and cautious estimation of the value of the chemicobiological solution.

MULTIPLE NEURITIS IN WOOD ALCOHOL POISONING.

BY SMITH ELY JELLIFFE, M.D.,

OF NEW YORK;

VISITING NEUROLOGIST, CITY HOSPITAL, NEW YORK; INSTRUCTOR IN PHARMACOLOGY AND THERAPEUTICS, COLUMBIA UNIVERSITY.

IN view of the recent bringing to light of the fact that many deaths have been caused by the use of methyl alcohol, and further, by reason of the renewed interest taken in the subject of methyl alcohol optic neuritis as evidenced by the more recent work of Buller and Wood,[3] it

1 Bertarelli, Centralblatt f. Bakt. XXXVII. Bd., Heft 6.
2 Some Problems in the Life History of Pathogenic Organisms. Science, December 16, 1904.
3 Introduction to a discussion held at the New York Academy of Medicine, January 17, 1905.

has seemed pertinent to inquire if types of neuritis other than that affecting the optic nerve may be caused by the use of methyl alcohol taken internally, either as a liquid or as a vapor.

It is well known that ethyl alcohol—ordinary grain alcohol—produces as a result of long use not only optic neuritis (first brought into prominence by Eichorst in 1876), but also the familiar type of peripheral multiple neuritis, first described in this country by James Jackson,[2] of Boston, as far back at 1822 as "A Peculiar Disease Resulting from the Use of Ardent Spirits."

Up to the present time, however, I have been unable to find any record of multiple neuritis induced by methyl alcohol. My search through literature has been extensive but not exhaustive, and at first sight it would seem highly improbable that attention had not been called to this condition, but it appears to have been overlooked, or I have overlooked it.

Inasmuch as the optic neuritis of wood alcohol poisoning has been thoroughly covered by some scores of investigators, Ward Holden,[3] Birch-Hirschfield,[4] Rymowitzsch,[5] de Schweinitz,[6] among them, I have limited the present note to some personal observations on peripheral neuritis resulting from the use of wood alcohol.

Of this affection *per se* three patients have come under my observation. By reason of the time limitations for this discussion their histories are presented very briefly.

The first patient was seen in 1898. He was a business man, thirty-four years old, and a moderately constant drinker. Sprees were not frequent but he drank small quantities, particularly at night before going to bed. During business hours he rarely indulged. He drank a special brand of whisky which was sold to him by an enterprising druggist, a friend of his, for 25 cents a quart or a dollar a gallon. His friend told him that it was tax-free whisky (moonshine whisky), that he bought on the quiet from some friends in the country. As a matter of fact it was a 35 per cent. Columbian spirits whisky with suitable flavors to make a "richly blended article." He was proud of his ability to "get next" to such a bonanza.

My notes made at the time do not cover the question of the length of time of his indulgence, but he had been drinking this whisky, and other whiskies also, the latter, however, in comparatively small quantities, for at least three months, if not six.

He began to suffer from severe gastric irritability and marked hyperesthesia in the upper extremities, particularly in both arms and hands. This was followed by incomplete paralysis of the extensors and typical drop-wrist. He also had a mild grade of ptosis.

I saw him while in the early stage of paralysis and also found that he had a partial amblyopia. It was very restricted. The patient recovered after four months of treatment, but he still complained of some blurring of vision. Since that time I have lost sight of him.

My notes are not extensive in this case but they are sufficiently explicit to enable me to exclude practically all other causes of neuritis. He was not a beer drinker. Arsenic may be eliminated. Other metal toxemias were excluded, as were also the posttoxic affections of the infectious diseases, malaria, grippe, typhoid, diphtheria, etc. The dyscrasiæ were also excluded. It is true that he occasionally drank good whisky, but most of his drinking was done in the evening at his own home from his own private special stock. I have always felt that this was a distinct example of neuritis from wood alcohol. The neuritis did not differ in any particular from neuritis due to ethyl alcohol.

Two other cases may be of interest in this connection, as showing a much lighter grade of affection and a different mode of ingress of the poison.

Both of these patients were painters, particularly varnishers. They did nothing but shellac work, on desks, furniture, etc., and they worked long hours and in comparatively small rooms.

The shellacs that they used were for the most part dissolved in wood alcohol and they were exposed to the evaporating fumes. They were comparatively unaware of any distinct action of the alcohol. As for one of them I never could make up my mind that he did not use the diluted alcohol to drink. Indeed, instances of drinking the wood alcohol washings from shellac barrels are not unknown. One of the patients reported on by Buller and Wood indulged in this manner.

Both of these patients suffered from the hyperesthesic form of the disease. The involvement was also of the upper extremities alone. There were the familiar paresthesiæ, numbing, pricking and shooting pains in the back of the hands and forearms. The pains were at times severe and there was intense pain upon pressure over the nerve trunks. The joints were involved to a slight extent only. There was also a certain amount of edema or puffiness.

These were instances, I believe, of beginning peripheral neuritis due to breathing the fumes of wood alcohol. It might be recalled that de Schweinitz[7] and others have described typical optic neuritis and blindness as a result of breathing the fumes of wood alcohol.

Both of these patients were intelligent men, and noting similar symptoms they were led to seek medical aid before serious consequences arose. It is true that the involvement was slight only, but it seemed at one time in the disease, particularly in one of the patients, that paralysis might develop. There was distinct motor weakness in both instances, and it might be added that they seemed more anxious about the impairment of their muscular power than they were about the sensory symptoms.

In so far as this whole question of wood alcohol poisoning is of comparatively recent development it might prove of service, particularly in opening a discussion, to recapitulate, in a re-

stricted sense, somewhat concerning our knowledge of the comparative toxicity of the different alcohols, particularly the peculiar characteristics of wood alcohol.

The alcohols that interest us are hydroxides of the marsh gas series: Methyl, CH_3OH; Ethyl, C_2H_5OH; Propyl, C_3H_7OH; Butyl, C_4H_9OH; Amyl, $C_5H_{11}OH$. Wood alcohol, grain alcohol, and amyl alcohol or fusel oil represent the most familiar.

Pharmacologists are in practical accord that from the lowest to the highest of the series there is for acute poisoning a gradual increase in the toxic action of these alcohols, and the early figures of Joffroy and Serveaux[8] have been practically confirmed by a large series of experiments with various animals. In general it may be said that the comparative toxicity in acute poisoning is: Methyl, .5 to .7; ethyl, 1; propyl, 2 to 3; butyl, 3 to 5; amyl, 5 to 8. These figures are not absolute for all species, but they represent a mean of the results of many investigations.

Thus Dujardin-Beaumetz and Audigé,[10] almost the earliest observers, working with dogs, showed that the toxic doses in grams per kilo of animal were arranged as follows: Wood alcohol (ordinary), 5 to 6; pure wood alcohol, 7; ethyl, 7.75; propyl, 3.75; butyl, 1.85; amyl, 1.50. Joffroy and Serveaux's[8] figures for the equivalents in toxic power for rabbits were as follows: Methyl alcohol, 25.25; ethyl alcohol, 11.70; propyl alcohol, 3.40; butyl alcohol, 1.45; amyl alcohol, .63; furfurol, .24, and Bär's experiments on guinea-pigs to control the figures of the earlier French writers showed practically the same results. Poisoning increased with the boiling point of the alcohol. He would arrange them as follows: Methyl, .8; ethyl, 1.0; propyl, 2; butyl, 3; amyl, 4. Less than one per cent. of higher alcohols added to ethyl alcohol does not seriously modify its toxicity, but four per cent. causes a distinct rise in toxic power. One to two per cent. of furfurol also increases the poisonous action of ethyl alcohol.

Reid Hunt's[11] more recent and exhaustive work on dogs shows somewhat similar results. He raises the question, however, that the results as observed in acute intoxication of the lower animals may not be applicable to man.

It may thus be seen that, dose for dose, for lower animals, including monkeys, and possibly also for man, although there are reasons why this may not be true, methyl alcohol is slightly less toxic than ordinary alcohol.

But the matter is distinctly different when repeated dosage is concerned. Here experimentation with the lower animals has shown that wood alcohol differs in its action from other alcohols. It is markedly cumulative in its action while the others are not or distinctly less so. The action of a single toxic dose, moreover, is much more prolonged than for any of the other alcohols, for Pohl and others have shown that the maximum output of decomposition products following wood alcohol doses does not occur until the third or fourth day. Thus lower animals may take ethyl alcohol or the higher alcohols for considerable periods of time, weeks, months or even years, and if the doses are not too large there is soon established a balance between absorption and elimination, and the animal continues to live and develops slowly the characteristic tissue changes of alcoholic degeneration. This is also true for fusel oil and for furfurol, two of the most poisonous ingredients of many intoxicating drinks.

Under methy alcohol, however, even if the doses given are not distinctly toxic, after a comparatively short time, two or three weeks, the animal dies, usually of coma, inanition, fatty degeneration of the liver, and almost invariably develops changes in the nervous tissues of the eye. It is thus very evident that the type of poisoning is different with methyl alcohol, and that probably the products of decomposition of methyl alcohol in the body are different from those of the higher alcohols.

Just what the exact steps are in the oxidations, more particularly of ethyl alcohol and wood alcohol, we are not yet in a position to state positively. Pohl[12] has shown that the probable course of the oxidation of ethyl alcohol is into ethyl aldeyde, to ethyl acetate, acetic acid, carbon dioxide and water; thus in the urine, beyond the small amount of unchanged alcohol, there are no traces of the decomposition products. For wood alcohol the oxidations are probably into formic aldehyde and then to formic acid, and the latter acid has been found in considerable quantities in the urine by Pohl, by Reid Hunt and others who have worked on this side of the problem. Pohl failed to find any increase of formic acid in the blood or tissues, however.

Pohl, Hunt and others have concluded then that in view of the prolonged action of methyl alcohol and the high toxic action when given in small repeated doses, it is probably very slowly oxidized and hence probably remains, first as methyl alcohol in contact with the tissues for a long time, and that probaly formaldehyde and formic acid play some part in the poisoning. Hunt has said that formic acid is probably six times as toxic as wood alcohol.

It is not therefore necessary to say that it is because of the impurities in wood alcohol, furfurol, acetone, etc., that this body is toxic: it is because of its very slow oxidation processes, and its own characteristic decomposition compounds.

Before wood alcohol was put upon the market as an odorless substitute for grain alcohol, as it was about 1896, under the name of Columbian Spirits, its very penetrating odor prevented, in large part, its use for adulterating whiskies and other alcoholic preparations, tinctures, essences, colognes, flavoring extracts, etc., but at the present time, if we are to take the statements of many competent analytical chemists that a large percentage of all these preparations is adulterated, and that largely by wood alcohol, the

situation is not reassuring. The Board of Pharmacy in this city at one time found an extensive use of wood alcohol in the manufacture of the tinctures of official preparations, to be used in serious illness, and, be it accorded to their credit, they have been indefatigable in their efforts to stop such highly reprehensible practices—and with success.

Why then do we not find a number of patients suffering from methyl alcohol peripheral neuritis, and why are there not more reported cases in literature?

There are a number of reasons why! One is that death occurs so promptly in many instances that there is not enough time to develop the lesion in the peripheral nerves; or because of the greater susceptibility of the ganglion cells of the retina, partial or complete blindness appears so promptly that the methyl alcohol mixtures are not taken for a greater length of time.

As for the reasons for this relatively greater susceptibility of the retinal ganglionic structures it can be accepted at the present time only as a fact, bearing in mind that the alcohols as a class affect the more complex nervous elements of the cerebrum and highly differentiated special senses more rapidly than the comparatively more primary spinal neurons of the peripheral nervous system.

Peripheral neuritis from wood alcohol does not seem to have been observed in any of the animals experimented on. Here again the early death precludes the development of the lesion, and, moreover, most of the investigators had in mind solely the effects to be observed in the retina and optic nerves. The more general subject of experimental wood alcohol peripheral neuritis is therefore in need of investigation.

64 West Fifty-sixth Street.

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No College Affiliation Yet.—At a recent meeting of the Board of Trustees of the University of Illinois, no action was taken relative to a closer affiliation between the university and the Chicago College of Physicians and Surgeons. At present the university and the medical school work under an agreement made in 1900. Recently, it is said, an offer was made by two philanthropists to endow the school as soon as it came into the possession of the University. President James and the Board of Trustees may take steps hortly to bring this about.

APPENDICITIS, AS A VISCERAL MANIFESTATION OF ERYTHEMA EXUDATIVUM MULTIFORME.

BY JAMES S. CHENOWETH, M.D.,
OF LOUISVILLE, KY.

Erythema exudativum multiforme, as its name would indicate, is an affection characterized by polymorphic skin lesions of an erythematous type. It may occur in the course of some general disease or in an apparently idiopathic manner.

The eruption may be the first and only manifestation of the disease; frequently, however, its appearance is preceded for several hours or days by prodromal symptoms, consisting of general malaise, headache, backache, gastric disturbances and fever.

Visceral lesions, which have been noted in a large percentage of cases, may precede or follow the eruption and may cause a fatal termination. In certain cases the lungs, brain, kidneys, stomach, and intestines have been pathologically affected. These visceral lesions are not uncommonly attended by intense colic, high fever, nose bleed, hematuria, hematemesis and intestinal hemorrhage, one or all of which may be present in any given case.

In a paper read before the Louisville Surgical Society, November 23, 1896,[1] I reported two cases of appendicitis, occurring in connection with erythema exudativum multiforme, calling attention, I believe, for the first time to the possibility of such a causation of certain cases of this disease.

The importance of these vasomotor circulatory disturbances as affecting the appendix has not, in my opinion, been sufficiently recognized, as more extended experience leads me to believe that these cases are by no means rare. The matter of diagnosis is one of grave importance. In the first place these attacks of colic, the so-called abdominal crisis of exudative erythema, may easily lead the inexperienced to make a diagnosis of appendicitis, when no lesion of that organ exists, on the other hand the more serious mistake may be made of overlooking the co-existing appendix trouble, unless it be recognized that these vasomotor circulatory disturbances do at times result in congestion of and even hemorrhage into the appendix, with the result that we may have bacterial infection and inflammation or actual gangrene of this organ. The peculiar anatomical arrangement of the appendix, the abundant lymphoid tissue enclosed by a dense fibromuscular sheath, and the possession of a terminal circulation, make it particularly liable to serious circulatory disturbances. What would in other portions of the intestine be a simple and temporary edema, may here result in a most serious condition.

The diagnosis of appendicitis in these cases must rest upon the classical signs, pain (localized or general in character), tenderness over the appendix, and localized muscular rigidity. In my experience the abdominal crises of exudative ery-

1 Mathew's Quarterly Journal, January, 1897.

thema have not been attended by muscular rigidity, and localized tenderness except in those cases in which the appendix has been involved, as demonstrated by operation in four cases.

Two of these cases are quite typical. The first was that of a boy, aged fifteen years, operated upon January 7, 1895. His mother had rheumatism and tonsillitis; one aunt had rheumatism, a second, exudative erythema; his father had rheumatism and died of endocarditis; a sister was under my care with erythema nodosum.

This boy came under my observation in the fall of 1890, suffering from tonsillitis and nose-bleed. From that time until the spring of 1894 I attended him at various times with tonsillitis, nose-bleed, colic and urticaria.

In May, 1894, after a horse-back ride, he had a severe attack of colic attended by vomiting. His pain was general over the abdomen, and unattended by local tenderness or muscular rigidity. His temperature was slightly elevated. The August following he had a second attack accompanied by fever, pain and vomiting, which subsided in a few days.

On November 23 following, he started on a hunt in Indiana. The first day out the weather turned very cold and he slipped on the frozen ground and cut a deep gash in his hand, which necessitated a return that night. Next day he had an attack of asthma with nose-bleed. This lasted with intermissions until December 6. On January 6, one month later, I was hurriedly called to find him suffering from colic and vomiting. He was quite nervous and tossing about the bed. Temperature 99.2° F., pulse 100, abdomen not distended; pain was most intense under the border of ribs on *left* side, and over the appendix. There was now present local rigidity and tenderness over the appendix. Enema of glycerin and water brought away only a little gas. Calomel grs. 1½ was retained. Five hours later he began to cough and his nose bled. Urine was scanty and contained some blood. Twenty-two hours after the commencement of the attack his temperature was 100.6° F., pulse 105. He had vomited several times and bowels had not moved.

An increasing tenderness in the region of appendix warned me against further delay, and notwithstanding many misgivings as to his general condition his abdomen was opened. The appendix immediately presented. There were no adhesions or signs of previous inflammation. The appendix was three inches long, the meso-appendix extending half its length. It was tensely distended, containing some mucopurulent fluid, and a good-sized blood clot. Hemorrhage had taken place into the walls of the appendix and mesentery, which were almost black in color.

The case went on without incident until the eighth day when the stitches were removed, union being perfect. On the ninth day, his stomach became deranged through some error of diet. This was followed by severe abdominal pains chiefly on the left side. On the next day an erythematous eruption appeared on the abdomen. During the next few weeks he showed nearly every possible phase of exudative erythema, pain and edema in the muscles and joints, urticarial lesions of all styles, bleeding from the nose, hematemesis, hematuria, and hemorrhage from the intestine, always preceded by intense colic. Purpuric spots appeared in the legs.

He finally recovered and has remained in good health with the exception of an occasional attack of erythema, sometimes accompanied by colic, and hematuria of short duration. I saw him in one attack during the past month.

The second case was that of a boy, aged fourteen years, taken sick in May, 1895. His family history is interesting. His father I operated upon for a large appendical abscess. A sister, twenty-four years of age, suffered from dysmenorrhea and tonsillitis. Several times I was called to see her, and found her suffering with violent colicky pain, usually located in left hypochondrium, and for which I could assign no cause. On one occasion this was attended by vomiting and an outbreak of urticaria. A second sister had rheumatism and tonsillitis, and finally developed appendicitis.

I first saw the boy about twelve o'clock in the day. He had been employed in a milk depot for a week, and the day before my visit had done a hard day's work for a boy of his age, handling the heavy cans, etc., and while overheated, drank a large quantity of ice cold milk before leaving the dairy. The next morning the awoke and at once complained of nausea and sore throat. A little later a number of large erythematous wheals appeared over the body and simultaneously he complained of intense abdominal pain, most intense over the region of appendix but generalized.

His temperature was 100.2° F., pulse 90; localized tenderness and marked rigidity of muscles over appendix. A diagnosis of erythema exudativum with appendicitis was made and the boy removed to Norton Infirmary, and operated upon at 9 P.M. of the same day.

On opening the abdomen the appendix was found pointing downward, and overlapped by the cecum; its walls were hyperplastic, and quite hard from the dense infiltration of its walls. The mesentery was thickened and extended almost to the tip of the organ. The distal third of the appendix and corresponding portion of the mesentery presented a dark, mottled appearance from the extravasation of blood into this hyperplastic tissue. The lumen of the appendix was pervious, and contained only a little mucoid material with fecal odor. Recovery in this case was rapid, the erythema subsiding in the course of a week.

The clinical as well as microscopical study of these cases seemed to demonstrate the fact that the pathological condition in the appendix was primarily and essentially the same as that taking place in the skin. That the erythema was not secondary to the appendicitis, is clear from the

fact that previous attacks of erythema had occurred in both cases and have occurred at intervals since the removal of the appendix.

The occurrence of appendicitis in these cases is of course not to be regarded as due to the erythematous eruption on the skin, but rather, as the title of this paper would indicate, as one of the visceral manifestations of that condition, of which the presence of such an eruption is the most common and easily recognized sign.

Just how often such circulatory disturbances occur in the appendix of sufficient severity to damage its integrity, and permit of bacterial invasion is a matter of conjecture. It would seem to me, however, that too much stress has been laid upon bacteria as the primary agents in the production of appendicitis, to the exclusion of all constitutional conditions. Certainly, if we would do anything toward the prevention of this disease it must be through the recognition of those general conditions which at least strongly predispose to its development.

SHORT AND EASY METHODS OF ARRIVING AT GOOD RESULTS IN DISEASES OF THE EAR AND UPPER AIR TRACT, ILLUSTRATED BY RECENT CASES.[1]

BY W. SOHIER BRYANT, M.D.,
OF NEW YORK.

Auditory Delusions.—Miss A. K., age twenty-seven years, January 13, 1904. She complains of voices and sounds. The voices talk about the thoughts that are in her mind. They say bad things about her. She has a slight "chronic middle-ear catarrh." I treat her with catheter, Siegel, and nitrate of silver. January 21.—Patient looks well. She does not hear the voices as clearly. The tinnitus is mostly in the right ear. The voices are heard in whichever ear is down on the pillow at night. March 10.—Hearing slightly improved. The voices have ceased. No recurrence three weeks later.

A very important case showing the connection between tinnitus and insane delusions, the tinnitus in a psychopathic patient taking the form of voices.

Caries of Tympanum; Radical Operation.—Miss M., aged twenty-four years. A year ago she lost a sister after a radical operation, who had the same aural complications as herself. September 14, 1904, when I first examined the patient, the tympanum had been curetted for the otorrhea some time previous, but otorrhea continues and there is a large carious surface on upper and inner wall of tympanum and antrum. Tenderness on pressure over antrum. Temperature 99° F. Slight, very fetid discharge. I performed the radical operation. Owing to the anatomical irregularities, the sigmoid sinus impinging against the posterior wall of the auditory canal, with only 1 mm. of bone intervening, the posterior cranial fossa had to be opened, exposing the greater part of the sigmoid sinus. The carious condition of the tegumen necessitated opening the middle cranial fossa and exposing a considerable area of dura. All diseased tissues were removed. The meatus was split and stitched back into the wound, which was closed and packed from the meatus, leaving only a pencil drain from the exposed dura. Temperature did not rise above 100.5° F. Drain removed September 18. Patient went home on September 28, with wound healed by first intention. Epidermitization progressed favorably. On October 26, the tympanum was all covered with skin except at mouth of Eustachian tube. November 11, the ear was dry and sound. November 25, watch nine inches. Patient has gained twelve pounds since the operation. Last seen December 17, in perfect condition. Shows satisfactory healing of tympanic cavity in eight weeks without skin grafting more than the plastic with the meatal flap. Mastoid wound entirely healed in thirteen days.

Epidural Abscess; Operation; Rapid Recovery.—Mr. G. T., aged twenty-one years. Patient of Dr. Michelis. (Shown at the 1904 meeting of the American Otological Society). Three months ago grippe and earache. Two months ago severe headache commenced. The first time I saw him, patient had seropurulent non-fetid discharge and not very marked tenderness behind ear. No superficial redness nor swelling. Tympanum filled with sensitive tissue. Marked tenderness over base of mastoid, extending posteriorly. Continuous severe headache. Constant seropurulent discharge. Temperature 100° F., pulse 88. On June 19 I performed my usual mastoid operation, using the front bent gouge. The mastoid cells and the whole process are filled with granulations and are removed. Posteriorly there is an area of bare dura about as big as a silver dollar, covered with pus and granulations. All the diseased bone is removed. Wound irrigated with saline solution and closed. Dry treatment for the tympanum. Temperature did not rise above 100° F. July 4, tympanum perfectly healed, acoumeter 13 inches. July 10, wound healed solid. Hearing very good. Patient still continues well. Shows the advantage of closing a comparatively clean cranial wound for union by first intention, and dry treatment of the tympanum. Tympanum completely healed in fourteen days. Wound healed solid in twenty days.

Severe Aural Symptoms Cured with Expectant Treatment.—Mrs. X., aged thirty-two years, daughter of one of the few rich men of New York. Left ear discharged many years. Head symptoms commenced, May, 1903, became violent in the summer and a mastoid operation was done with transient relief. March 15, 1904, on account of vertigo with epileptiform exacerbations, extreme tenderness in scar and over bone of mastoid and occiput, and swelling and tenderness down the neck. Headache, temperature

[1] In the Fourth Pan-American Medical Congress, Panama.

99° F. A radical operation was done by Dr. Crockett, of Boston. I assisted and had subsequent charge of the convalescence. Patient much relieved by operation, wound healed by first intention. Maximum temperature 99+° F. A facial paralysis appeared the day after the operation. March 22, meatus and bone behind ear very tender, shooting pains; April 2, very annoying vertigo, convergent strabismus, more or less constant pain and tenderness behind, below, in ear and down neck, and in right occipital region, and paralysis worse. Cleaning the canal and tympanum seemed to relieve the condition. Exacerbation on April 12, 23 and May 5. A third operation was not advised on account of the prominent position of the patient. Pharyngitis was associated with these exacerbations. May 20, felt difficulty in moving left leg and arm. June 16, no dizziness. June 21, a relapse, walking difficult, on account of vertigo, tenderness. June 24, ear discharge increased with relief of symptoms. July 25, ear dry, hearing good, symptoms very mild. November 12, tenderness gone; November 18, bad attacks, pharynx involved, but ear remains dry and healed, no redness of canal. December 14, another similar attack. It appears that the submerged tonsil is chiefly to blame for these attacks. Cleaning the tympanum and nitrate of silver to the pharynx rapidly relieved the attacks. The facial paralysis very much improved with strychnine, massage and electricity.

An alarming group of symptoms due partly to the ear and partly to the throat, but apparently without any immediate danger.

Epithelioma of Concha.—Mr. S., aged sixty years. October 31, 1903, has an ulceration of the concha as large as a five-cent piece, behind posterior edge of right meatus. He says ear has discharged for six years. No glandular enlargement noted. I removed a specimen for histological examination. It was pronounced epithelioma by Dr. Dixon. March 24, 1904, ulceration has slightly extended. After three weeks, with four X-ray exposures per week, by Dr. Morton, the ulceration has entirely cicatrized and disappeared. No recurrence. This justifies a good prognosis for epithelioma of the auricle before involvement of the glands.

Facial Paralysis.—Mrs. X., aged twenty-eight years. October 25, 1904, left facial paralysis four days' standing. Cause not known. The eye can be three-quarters closed, paralysis most marked about mouth. Ear normal. Tenderness below and in front of the ear extends onto mastoid process. Valsalvan inflations easy. Hearing slightly defective by air conduction. Left side of pharynx red and somewhat swollen, has been painful for two weeks. Pain in the throat in the posterior and inferior mandibular region. Could not eat for pain in ear. Could not shut mouth for a few days. Treatment strychnine and heat; silver applications to the pharynx. Patient improved rapidly. In ten days could whistle slightly. Shows an unusually rapid recovery in spite of the neglect of electricity.

'Absence of Liquefied Contents; Obstinate Fetid Otorrhea from Attic and Antrum. Hearing Improved by Dressings.—Miss N., aged twenty-seven years. Referred to me by Dr. Joseph A. Kenefick, October 7, 1904. She has had a running ear for more than five years, and much treatment, including ossiculectomy four years ago. Tympanum is devoid of all structures except stapes. There is scanty, very fetid discharge. The epitympanic space very extensive and filled with decomposing material. I cleansed the ear with H_2O_2, alcohol, and boric acid, and nitrate of silver solution. The vault and tegumen are extremely sensitive. October 7, nearly dry but fetid; October 29, clean, damp, but no smell; November 12, less tenderness; November 28, very little tenderness; December 5, dry and not sensitive; December 14, ear in fine condition. Hearing by watch 3.5 inches; after insertion of cotton tack it is eight inches, and with paper dressing nine inches. Fetid discharge from vault of attic and mastoid antrum cured in eight weeks.

Fetid Otorrhea of Very Long Duration from the Antrum through a Small Perforation.—Mr. T. C. J., merchant, aged thirty-nine years, December 1, 1903. Scanty, thin, fetid, purulent discharge from left ear, which has lasted for many years in spite of prolonged treatment by others. There is a perforation occupying the upper posterior quadrant, leading up into the antrum. The anterior part of tympanum is shut off by a cicatrix. I syringe the ear with Blake canula and solutions of boric acid and nitrate of silver. After five treatments on alternate days the ear has ceased discharging and is healed. December 21, 1904, hearing fair. Patient has gained much strength. Constant fetid discharge from mastoid antrum cured in eight days.

Caries of the Malleus and Perforation of Shrapnel's Membrane.—Capt. D., U.S.A., aged thirty-four years. Referred by Dr. Clarence J. Blake, of Boston, who made the diagnosis of perforation of Shrapnel's membrane with caries of the neck of the malleus. Purulent discharge came on in right ear during service in Cuba, 1898. Ear has discharged more or less ever since, in spite of varied treatment. It was much aggravated by recent service in the Philippines. Capt. D.'s application to the Surgeon General for allowance for special medical treatment being granted, I commenced treatment, February 27, 1904. I find a perforation in Shrapnel's membrane and a slight amount of mucopurulent discharge. I syringed with boric acid solution, nitrate of silver, and alcohol. On March 3, hears acoumeter five feet. On March 9, discharge has ceased. Acoumeter 7½ feet. Discharge soon reappeared, but was brought under control once more. March 27, acoumeter 15 feet. Again the discharge reappears, and again was stopped. May 3, the ear became permanently dry, and

treatment discontinued. May 17, hearing was 35 feet with acoumeter. Patient last seen November 28. Ear has not bothered him any more.

Purulent discharge through Shrapnel's membrane lasting for over six years, permanently stopped 9½ weeks of treatment.

Chronic Purulent Otitis Media with Pinhole Perforation of Membrane.—Mr. K., aged twenty-three years, first seen May 20, 1904. Has had for four years purulent discharge from right ear, on account of which he is not now serving in Austrian army. He has had much treatment in Europe. I found fetid mucopurulent discharge oozing through a small pin-hole perforation behind the tip of the malleus. Membrane opaque slightly red and very thick. Thick mucopurulent discharge in vault of pharynx. Acoumeter three feet. I enlarged the perforation in membrane by a horizontal incision, and treat by syringe of boric acid, nitrate of silver and alcohol for the ear; alkalol spray for the nose. July 23, hearing acoumeter 15 feet. August 22, hearing acoumeter 30 feet. Discharge stopped. Perforation shows no tendency to close up. September 14, patient still in good condition. A very obstinate purulent inflammation of the middle ear is healed in 13½ weeks.

Acute Salpingitis and Epitympanitis.—Miss J. A., aged twenty-six years, referred by Dr. Van Loan, December 13, 1904. Has had cold in the head a month. Deafness two weeks. Lost weight, pain in left ear and ringing sounds, discomfort in right. Watch, left ear, 4 inches; after treatment 17 inches. Right ear, 18 inches; after treatment 48 inches. Left Shrapnel membrane red and bulging. Right ear partly filled with fluid. Catheter and saline sprays. December 15, no pain or noise. Right ear, watch 96 inches, left ear, watch, 24 inches. Rapid recovery of an acute condition in forty-eight hours. Hearing, watch right, 4 inches, increased to 24 inches, and in left ear from 18 inches to 96 inches.

Mechanical Assistance for Defective Hearing in Loss Due to Suppurative Process. Cured by Nasal Treatment.—Mr. F. B., aged twenty-five years. June 15, 1904. Has had purulent ears for many years. Left ear discharging now, right cicatrized. I found hypertrophied lower turbinates and thick mucopurulent discharge. Acoumeter, right ear, 2 inches; left ear, zero. After inflation, left, 2 inches; right, 4 inches. I improved the nasal condition with operative and palliative treatment and the ears dry up. July 3, both ears cicatrized. August 14, with cotton dressing, hearing for right ear, acoumeter, 7 inches, left ear 14 inches, August 31, without cotton, 4 inches in right ear and 2 inches in left ear. With cotton replaced, hearing 18 inches in the left ear. September 6, right ear, acoumeter 48 inches with cotton; left ear, 2 inches without and 9 with. October 24, right ear, without cotton, 23 inches; left ear 10 inches with paper dressing in ear, 12 inches with cotton dressing. Patient thinks he hears well enough for ordinary business purposes. Otorrhea, stopped in seventeen days. Hearing brought up from acoumeter, right 2 inches, by use of dressings, to over 48 inches in three weeks, then without the dressing to 23 inches in ten weeks. From acoumeter left 0 inch, by use of dressings, to 12 inches in ten weeks.

Grave Tinnitus.—Mr. J. M., aged forty years, referred to me by Dr. Alfred Michaelis, February 14, 1904. Patient neurotic and haggard in appearance. Says he has an unbearable tinnitus in his left ear, preventing sleep and attention to business. Conversation and appearance suggest lack of mental balance. The ear began to run thirty-six or thirty-seven years ago. The tinnitus began twelve years ago. In September, 1903, underwent the radical mastoid operation for tinnitus, without any effect on the tinnitus. The ear shows a large epidermatized tympanic cavity; no discharge. Told the patient that it is possible to remove the auditory nerve and thereby stop the tinnitus, but milder measures had to be tried first. Give hygienic suggestions. February 27, 1904, patient attempted to end his troubles by taking poison. June 24, general condition improved, sleeps better, has been practically free from tinnitus a few days. December, 1904. Hygiene has improved his physical condition and restored his mental balance. He says he is getting used to the tinnitus. After ten months the patient's mental attitude is much improved.

Commencing Stapes Fixation.—Mr. F. L., aged twenty-eight years, referred to me by Dr. C. A. Crockett, of Boston, October, 21, 1904, with diagnosis of commencing stapes fixation of right ear. The right drum membrane is dark-colored and of normal transparency, nasal mucous membrane dark red. Tinnitus, like a sea-shell, crackling and musical notes. I used catheter, iodine vapor instillations, and nitrate of silver to the pharynx. Ear feels and looks much better after the treatment. December 12th, acoumeter, 96 inches. The shell-sound tinnitus remains but is much lower and intermittent. Valsalva possible but slow. Strychnine sulphate seven-sixtieth grains per day. In 7½ weeks the stapes fixation has been materially improved.

Adhesive Middle-Ear Catarrh.—Mrs. P., referred to me by Dr. Potter, of New York. Aged seventy-one years. Gouty tendency. December 2, 1904, itching of canals, ears feel thick. Nasal mucosa dark red. Acoumeter, left 27 inches, right 10 feet. Adrenal powder, silver nitrate to tubes and lanolin to canal. December 14, subjective symptoms stopped. Left ear acoumeter, 42 inches; right ear, 15 feet. Rapid improvement of hearing in adhesive processes in the patient; from right acoumeter, 120 inches, left, 27 inches; to right acoumeter, 180 inches, left, 42 inches, in eleven days.

Very Obstinate Case of the Atrophic Form of Chronic Catarrhal Otitis Media with Deafness and Tinnitus.—Seen at the New York Eye and Ear Infirmary, February 4, 1904. Mrs. G. G., aged twenty-nine years, complains of tinnitus, simultaneous or alternating in the ears. High and low bells ringing. She says she has had the sounds in her right ear for two years and in left ear six. Right drum membrane has a large calcified area in anterior half. Hearing by air conduction very bad in left ear, good in right. Air passes by catheter and Valsalva, best into left tympanum. Fork lateralized in left ear. Nasal mucous membrane dark red and thickened. I treated her with the catheter, iodine vapor and applications of nitrate of silver to the nasopharynx. Negative results continue for a long time. August 9, 1904. Has been better of late, and now hears well. August 18, 1904: Tinnitus stopped in right ear, and nasal mucous membrane is light pink and clean. Finally tinnitus stopped, and hearing very good. A short relapse in November, easily controlled. Mucous membrane good color; all right again. December 4. In twenty-eight weeks the atrophic condition has been overcome. Result entirely satisfactory to the patient.

Deafness Due to Adhesive Processes, Defect and Relaxations in the Sound-Conducting Mechanism.—Mrs. S., a society woman, aged forty-three years; referred to me February 8, 1904, by Dr. Clarence J. Blake, of Boston, for continuance of treatment he had commenced. Right ear has a dry perforation which is being treated by paper dressing to induce proper adhesions. Left ear: Drum membrane relaxed, being treated with collodion dressing. The acoumeter heard at a distance of four inches by the left and 12 inches by the right ear. I continued the treatment of paper and collodion dressings. On March 22, the perforation is healed and the hearing in the right ear is, acoumeter, 96 inches and in the left, 72 inches, in spite of the patient's being quite exhausted from the season in New York. In six weeks the hearing has improved from acoumeter, 12 inches right and 4 inches left, to ninety-six inches right and seventy-two inches left.

Subacute Closure of Eustachian Tube.—Mr. H. D. H., aged thirty-eight years; referred to me by Dr. Joseph Collins, December 1, 1904. Has had a cold in the head since November 12. Ears began to feel full November 20. Has had various kinds of treatment from others. He hears, acoumeter, 14 inches in right and 48 inches in left; after Politzerization, right, 54 inches, left, 96 inches. Insufflation of powdered suprarenal gland. Apply a solution of nitrate of silver in the red and swollen nasal fossæ, and gave a menthol-eucalyptol spray for home use. December 3, acoumeter, left 12 feet, right 8 feet. After Politzerization acoumenter heard over 20 feet by each ear. December 8, acoumeter in right over 15 feet and watch 3 feet. After Politzerization, watch 6 feet. December 18, watch right, 7 feet, left, 5 feet. Patient was more than satisfied. In forty-eight hours the hearing improved from 14 and 48 inches for acoumeter, to over 240 inches for each ear. This improvement increased 50 per cent. more on the seventh day of treatment.

Stricture of Eustachian Tube with Adhesive Catarrhal Processes in the Tympanum.—Miss D., referred to me by Dr. Clarence J. Blake, of Boston, September 10, 1904. When a child she had a discharge from the right ear, and recently an acute attack of streptococcic infection in the attic. Nasal mucous membrane is dark red, nose clear, no air enters tympanum by Valsalva. The patient had closure of the right Eustachian tube and occasional tinnitus. I treated her with the catheter. The air entered tympanum with difficulty. Then applications of nitrate of silver in the nasopharynx, and alkalol spray. After the third treatment she hears watch, left 9 inches, right 6 inches. Air goes into left tympanum by Valsalva. On October 21, Valsalva easy; patient feels much better. No abnormal sensations in ears. Drum membranes look very nearly normal. Watch, right ear, 40 inches, left, 54 inches. October 28, no unpleasant symptoms. Patient satisfied to stop treatment. The stricture was cured in six weeks with relief of the adhesive condition.

Loss of Acoustic Balance with Tubal Stricture.—The Rev. Mr. J., twenty-six years old. October 25, 1904, complains of impaired hearing in left ear. Tuning fork lateralized to the left with much increased bone-conduction, slight ringing tinnitus. Valsalva not free. Membrane good color, slightly relaxed. Apply solution of nitrate of silver to the nares. November 1, Valsalva easier. On the fifth visit, November 11, hears watch 72 inches in right ear and is well pleased with improvement. Treatment: catheter, strychnine, suprarenal powder and nitrate of silver. December 7, watch 7 feet; fork still lateralized in the left. Apply thin collodion dressing to left ear. Watch heard 10 feet. December 9, watch heard 15 feet by left ear. Valsalva very easy, and ready return. Application of collodion. Hears watch twice as far in left ear as in right. Left ear, 30 feet, equivalent to $^{30}/_{10}$. Right ear, 15 feet, equivalent to $^{15}/_{10}$. Stricture cured in six weeks. Acoustic balance restored in forty-eight hours, and deafness exchanged for hyperacoustic.

Valvular Occlusion of the External Auditory Meatus by a New Growth, Causing Grave Reflex Symptoms (Reported before the American Otological Society, 1903).—Seen at the Massachusetts Charitable Eye and Ear Infirmary, through the kindness of Dr. Z. L. Jack, April 14, 1903. Mrs. E. W., a well-nourished, neurotic woman with a haggard expression, aged thirty-one years. Declares that she can no longer endure her distress, which she is unable to describe. Complains bitterly of indescribable misery and dis-

comfort in her head, sleeplessness due to the oppression in left ear, and severe headache, deafness and inability to do any work, read, sew or fix her attention, without extreme effort, inability to sleep and consequent irritability, nervous exhaustion and mental confusion. She said that she was helpless, no use to herself or any one else, and that she wished to die if she could not be cured. She locates the source of her trouble in her left ear, which has been treated by many "specialists," but her condition has steadily grown worse. Nose is occluded by engorged turbinals. She has a slight strabismus. Appearance and hearing of right ear normal; left ear, $^{3}/_{25}$, conversation voice. Inspection shows a normal meatus, except that at the orifice the upper wall sags sufficiently to be in contact with the lower for a distance inward of about half an inch, and closes the meatus like a valve. Drum membrane appears normal. On questioning the patient it appears that the meatus becomes hermetically occluded and that the vacuum forming on outer surface of the drum causes her unpleasant symptoms by drawing out the drum membrane. I removed a small free subcutaneous fibroid of the keloid type under nitrous oxide anesthesia. Wound healed in three days. Left drum membrane and hearing normal. The patient said that as soon as she had quite gained her mental equilibrium after the anesthetic, she found complete relief from her disagreeable symptoms, and that she now has perfect nasal breathing, a condition which she can scarcely remember to have enjoyed before. November 1, 1903, she still has occasional headaches, but none of the same symptoms she formerly had.

Foreign Body in Meatus.—Seen through the kindness of Dr. Gorham Bacon, February 18, 1904. Mr. M. C., aged twenty-two years, complains of tinnitus in left ear. Inspection shows a piece of cerumenous-looking substance resting against the drum membrane. This I readily removed with a syringe. It proved to be a bean. Patient declares that the bean has been in his ear since his seventh year. After drying the canal, all symptoms have disappeared, and the membrane appears normal. The canal was large and had a spacious posterior pocket. There was very little cerumen and epithelium removed with the bean. The skin was separate from the bean, which was brown, like a baked bean.

Vertigo from Impacted Cerumen.—Seen through the kindness of Dr. Albert H. Buck, November 2, 1903. Mr. J. B., aged forty-two years, complains of "swinging" vertigo for the last four months. Says he "drops right in his tracks. Feels it coming from the legs up." He says his left ear has been stopped for three or four years. Inspection discloses impacted cerumen in left meatus. Hearing in the other ear good. I removed the cerumen with the syringe, and all sensations and symptoms of vertigo disappear on the instant.

Deafness of Twenty Years Cured by Removing Cerumen.—Seen at the Vanderbilt Clinic of the College of Physicians and Surgeons, through the kindness of Dr. Robert Lewis, Jr., October 18, 1903. Mr. A. B., aged twenty-seven years, complains of increasing deafness in his left ear. Cerumen is seen packed in both meati. First I syringed the cerumen out of the right ear. Immediately the patient was wonder-struck, declaring that he hears in the right ear for the first time. He admitted later that in childhood he had heard with both ears. The membrane appeared in fair condition. The hearing in the left ear was also restored by syringing out the other plug of cerumen.

Empyema of All the Sinuses of the Nose.—Seen through the kindness of Dr. John L. Adams. Mr. N. S., twenty years of age, paper-box maker. History of case dates back a year and a half. Now complains of occluded nares and profuse purulent discharge. Inspection of the nares showed purulent discharge coming from the vault and from between the middle and lower turbinates on both sides. Transillumination shows the frontal and maxillary sinuses opaque. I removed part of both lower turbinates; later on, part of the middle turbinates, at several sittings. Opened up and drained the frontal sinuses through the nose. I partially removed the ethmoidal cells with the curette and Myles' punch. The sphenoid sinuses found discharging, and I I opened both with the curette. Opened the right maxillary sinus through the middle meatus. At frequent intervals cleansing and curetting. August 27, 1904, after neglect of treatment, patient returns for the first time, with frontal pain and tenderness, which is relieved by curetting and opening up the sinuses for free drainage. Patient pale and appetite poor. December 12, patient well, with good color. Nasal secretion not yet perfectly clear.

Complicated Nasal Obstruction, Causing Serious Aural and Reflex Disturbances.—Seen at St. Bartholomew's Clinic. Mr. R. S., aged twenty-three years. Complains of severe frontal parietal and occipital headache, trifacial neuralgia, difficulty in reading and in fixing the attention for any length of time, sneezing fits, severe nose-bleeds commencing spontaneously at four years of age, tinnitus, dizziness, and discharging ears. Inspection shows nose absolutely occluded by an S-shaped deflection of the septum, combined with extensive bilateral spurs. I performed a modified Asche operation under ether. After convalescence I removed the spurs on both sides, and later on part of lower turbinates. Nasal breathing is established and all symptoms gradually improved; headaches cease, mental condition improves, eyesight acute, and later on (December 28) the ears, without special treatment, cease discharging entirely and cicatrize. Tinnitus ceases August 13, 1904. The hearing is improved and remains good in one ear and fair in the other. All unpleasant symptoms disap-

peared. Last seen, December, 1904. Patient in the same good condition.

Mouth-Breathing from Chronic Engorgement of the Turbinates.—Seen at the Presbyterian Hospital, October 10, 1904; Mr. J. P., aged twenty-three years, a cigar manufacturer. Trouble for five years with constant nasal occlusion. Inspection: Nares occluded by enormously engorged lower turbinates, mucous membrane fairly good color. I insufflated powdered suprarenal gland. The turbinates shrink, leaving free nasal fossæ, and disclosing a small spur. I then apply a solution of nitrate of silver, and instruct the patient to spray his nose with Dobell's solution twice daily. A week later patient is seen again. There has been no recurrence of nasal obstruction. Nares normal. All treatment stopped. The cure will probably be permanent if the patient changes his occupation. Chronically engorged turbinals restored to normal function after one treatment.

THE DIAGNOSIS OF MALARIA BY THE FINDING OF PIGMENTED WHITE CORPUSCLES IN UNSTAINED BLOOD FILMS.

BY J. R. CLEMENS, M.D.,
OF ST. LOUIS, MO.

SOME twenty months ago I came across an article by Patrick Manson in C. G. Gibson's Text-book of Medicine. The article in question was on malaria, and it was under the heading of diagnosis that my attention was arrested by the following: "The finding of pigmented white corpuscles is absolutely pathognomonic and a diagnosis may be made on that finding alone."

Since the reading of that statement I have examined over 500 unstained blood films in which pigmented whites were found and I have never had occasion to regret the diagnosis I made in each case—malaria. The advantage of diagnosing malaria in unstained specimens by the presence of pigmented whites over the diagnosis of malaria by staining and looking for the inconstant *Plasmodia* will be brought out clearly, I think, by a comparison of the parallel columns below, which will also accentuate the simplicity and infallibility of Manson's method over that of the school who still cling to the staining method and search (often in vain) for the elusive *Plasmodia*.

Diagnosis by Pigmented Whites in Unstained Specimens.	Diagnosis by *Plasmodia* in Stained Specimens.
A *constant* index, found always, irrespective of the time of sporulation or the action of quinine. (Within certain limits.)	Often absent; influenced by quinine and the time at which the blood is taken.

The examination of unstained specimens possesses the further advantages of celerity and simplicity of technic which anybody can master in one demonstration and the recognition of unstained pigmented whites is infinitely more easy than that of the *Plasmodia* in stained specimens. Besides, the most elaborate and skilful staining is often made in vain, for the good reason that there are no *Plasmodia* to stain and, therefore, a diagnosis by this method must often remain in doubt. There can be no doubt to the follower of Manson, for a pigmented white can only mean (with two rare exceptions) malaria, and if there be malaria present there will always be pigmented whites.

I have found the pigmented whites trusty guides in all manner of irregular malarial attacks masquerading under the guise of typhoid, rheumatism, appendicitis, acute diarrheas, gastric crisis, vomiting, periodic vertiginous attacks, etc., and relying on them have told the patients they had malaria and further proved it within a few hours by the effects of quinine. If such a degree of accuracy is given by unstained pigmented whites; why, I ask, go to the trouble of waiting at the bedside for a paroxysm or staining. The Manson method is open to all, the staining method to but few, hedged in as it is by so many provisos and exceptions.

PSAMMOMA OF THE MAXILLARY SINUS.[1]

BY JOHN C. MUNRO, M.D.,
OF BOSTON, MASS.;
SURGEON-IN-CHIEF CARNEY HOSPITAL; LECTURER IN SURGERY, HARVARD MEDICAL SCHOOL.

THE formation of sand bodies may take place frequently in various portions of the central nervous system, such as the inner surface of the dura, the arachnoid, the pineal body, etc., without going on to the formation of a definite tumor. Virchow limits the term psammoma to tumors located in the central nervous system and its coverings, although the same type of sand bodies may be found in tumors of various sorts, such as fibroma, papilloma, carcinoma, sarcoma, etc. Ziegler describes the psammoma as "sarcoma or fibrosarcoma of the dura, inner meninges or pineal gland, which contain concretions of lime in greater or less abundance. Some of these concretions are similar in structure to the normal brain sand, the basis of their formation being a concentric mass of cells which have undergone hyaline degeneration. They usually form round nodules and may be of multiple occurrence." When, however, the sand bodies are found in tumors, the type of the latter must be determined partly from the sand bodies but essentially according to the constituent type of tissue (Virchow). Consonant with Virchow's theory of the origin of tumors he ascribes them to irritation or chronic inflammation. He has separated, moreover, from his great class of sarcomata this form of tumor under the name of psammoma as it belongs, with respect to its histological construction in general, to the connective tissue type of growth (Steudener). Biegel has limited the term psammoma to tumors in which there is slow

[1] Read by invitation before the Rocky Mountain Interstate Medical Association, September, 1904.

growth with scarcely any tendency to multiply, and standing between the fibromata and the solid spindle-cell sarcomata, a sharp line of differentiation, however, being difficult of demonstration. In the carcinomata, including as well endotheliomata, we may not infrequently find deposits of lime salts, mainly as concretion-like masses, just as we find them in psammoma. "These concretions may form either from the cells or in the connective tissue. They occur particularly in the papillary adenomata of the ovary and in cancer of the mammary glands" (Ziegler). The psammo-carcinomata, furthermore, form metastases of a type corresponding to that of the original growth, so that the secondary growths are found in organs of most varying types—in short, where a carcinoma may grow a psammo-carcinoma may also be found (Marben). The majority of these psammomata have been described as originating in the ovary, with metastases, involving practically any of the intra-abdominal organs, but in addition to these there are a few psammo-carcinomata reported as primary in the liver, bones, skin, etc. (Marben). The case reported to-day apparently belongs to a similar type as found in the central nervous system and occasionally in distant organs such as the submaxillary glands, etc. As a careful examination of the literature has failed to unearth an analogous case, it has been deemed worth while to place this one on record.

Case.—Delia C., about twenty years old, servant girl, first consulted Dr. Allen Greenwood, who has kindly given me the following history: "Delia C., called at my office in December, 1902. Seven years prior to this she noticed that the left eye was a little more prominent than the right. Year by year this had become more marked, until at the time of her visit it had become so prominent that it was a source of annoyance on account of the resulting disfigurement. At no time had there been any pain and the vision of the eye had not been interfered with. She had never noticed diplopia.

"Examination showed the following condition: The left eye was markedly proptosed so that the lids could be closed with difficulty. The apex of the cornea was on a plane 2 cm. anterior to that of the other eye. The eye could be moved freely in all directions but the extent of the motion was limited about 50 degrees less than normal, so that a diplopia could be produced by directing the vision as far from the line of central fixation as possible in any direction. The fundus was normal and the V. = $^{20}/_{20}$. The eye could not be pushed directly backward, but could be pushed a little upward and backward. Palpation revealed a smooth rounded mass in the lower part of the orbit beginning at the infra-orbital ridge and running upward and backward as far as the eye would allow the finger to go. How much farther it extended could not be ascertained with the finger, but it appeared from the feeling that the bulk of the mass was back of the equator of the globe. There was a sulcus between the mass and the ridge of the orbital floor which admitted the finger-nail, showing that while the mass might be connected with the infra-orbital plate the ridge was not involved. Laterally the mass could be felt to extend out to the side walls of the orbit at the level of the canthi.

"The slow development of the growth would count against its being malignant and delay was advised as I thought it might be an exostosis arising from the infra-orbital plate.

"I saw her again in May, 1903, when it appeared that the proptosis had slightly increased and I advised an exploratory Krönlein's operation; sending her to Dr. J. C. Munro for that purpose."

When the patient came to me in May, 1903, I found the condition as described by Dr. Greenwood and advised operation, supposing that we should find an infra-orbital bony growth. Under ether a modified Krönlein's operation for exposing the orbit was carried out. A curved incision at right angles to the line of the external canthus was made and the outer wall of the orbit was chiseled out in the form of a spherical triangle without stripping the periosteum. The edges of the bone were beveled so that when replaced the fragment rested in practically normal position. The bony, together with the undisturbed soft tissues overlying it, was turned backward on a hinge of periosteum, skin, etc. A slightly fluctuating tumor was found lying behind, below and to the outer side of the globe, on chiseling the outer edges of the wall, which proved to be soft bone of the thickness of blotting paper, a large cyst-like tumor was encountered, full of reddish granular material, feeling like a mixture of sand and putty. This was curetted out in large quantity and lay for the most part below and behind the globe, evidently having pushed upward from the antrum, the bony plate felt behind the orbital ridge before operation, proving to be the orbital floor forced upward like a trap-door by the invading growth. A further opening was then made through the mouth into the antrum. At first about a dram of puriform mucus escaped, but above this, filling the antrum, was the same gritty material that had been found in the orbit. This was thoroughly curetted out, the inner surface of the walls feeling rough but not nodular. There was considerable venous oozing while the curetting was going on, but it was easily controlled by packing. The orbital floor was then pushed back into place and the antrum packed with iodoform gauze. In replacing the bone-flap of the orbit the deep fascia was sutured with catgut and the skin closed with buried silkworm gut. No shock followed the operation.

For some time following operation there was marked edema and ecchymosis of the lids and conjunctiva as well as ecchymosis of the lids of the right eye. Some relief to the edema followed removal of the packing, and under irrigation and iced cloths no injury to the cornea

followed. Convalescence was not as satisfactory as had been anticipated. The pulse and temperature kept steadily above normal and in spite of persistent irrigation a foul discharge kept up and the exophthalmos did not subside satisfactorily. The patient had a poor appetite and was in bed most of the time. The temporal wound healed per primam and left no deformity. The patient finally consented to a second operation with a view to removal of the upper jaw if necessary, as it did not seem unlikely that the growth was becoming malignant if it had not been so from the first.

Two months after the first operation the patient was again etherized. The left common carotid was closed with a Crile clamp, and the opening in the antrum enlarged for exploration. The latter, however, was found free of growth. As, on examination with the finger, fulness posterior to the upper jaw, was found, an incision was made along the side of the nose and through the upper lip, in order to turn the cheek back. The anterior wall of the upper jaw was removed up to the infra-orbital foramen. A hard tumor could be felt in the roof of the pharynx pushing the mucous membrane downward, apparently having taken its origin from the antrum. This tumor proved to be psammomatous, exactly similar to that found at the first operation. On removing the pharyngeal portion more growth was found, so far as could be determined, in the sphenoidal and ethmoidal cells of both sides and surrounding the left lateral wall of the nasal cavity, which was removed. The vomer had been pushed far to the right but was not involved in the growth. The tumor lay also on the upper surface of the palate, but the latter itself appeared normal and did not require to be removed. Above, the growth extended to but did not involve the frontal sinuses. So far as could be told all of the tumor was removed. Exploration into the cavity of the orbit showed no sign of recurrence in any region. The resulting extensive cavity was packed with gauze and the wound closed with silkworm gut and horsehair. Very little bleeding followed removal of the carotid compression and there was only a moderate degree of shock at the close of the operation.

The patient rapidly convalesced and was discharged in good condition at the end of a few weeks.

Examination of the growth removed at the first operation was made by Dr. J. H. Pratt and is as follows: Tumor of orbit and antrum of Highmore. Macroscopic examination.—The specimen consists of a mass about 15 c.c. in bulk. In appearance it does not look unlike fine sand soaked with blood. When a small portion of this substance was placed in a test tube and hydrochloric acid added, there was some effervescence, but the granules did not entirely dissolve. These sand-like particles were readily separated from one another.

Microscopical examination.—Some of the material was decalcified in sulphuric acid and embedded in celloidin. It was found that the calcareous bodies were separated by tissue consisting of very closely packed, long, spindle cells with little or no intracellular fibrillar substance. The nodules varied in shape, averaging 50 to 70 mm. in size, and some had a more or less concentric structure. They were in such close contact that the areas of tissue between them were very narrow.

Diagnosis—Psammoma of peculiar type, which possibly should be classed as sarcoma.

Before the first operation there was no suspicion of any growth involving the respiratory tract and no examination was made of the throat as everything pointed to a localized orbital lesion. After operation, however, although it was supposed that all the growth was removed, a poor general condition seemed to indicate that the tumor might be a malignant one, as examination of the throat did not suggest anything so extensive as was found at the second operation. Later, when operation was urged, consent was not obtained until it was apparent that something more radical must be undertaken. As to the origin taking place definitely in the maxillary sinus rather than in one of the deeper sinuses, an accurate determination could not be made. The invasion into the orbit must have been from below and must have dated back for seven or more years. The position and condition of the orbital floor seems to establish that definitely. The absence of nasal or throat symptoms would point to a slow growing tumor of the maxillary sinus, gradually filling the cavity and pushing the lateral wall of the nose inward, invading the sinuses of the ethmoid and sphenoid later and possibly rapidly at the time of operation or thereabouts. Had the growth started originally in the ethmoid or sphenoid it hardly seems possible that it could have filled the antrum, and then the orbit, without causing more nasal and throat symptoms. Origin from the dura was considered, but there were no indications of a basal fissure or other structural deformity.

The prognosis was doubtful, but, considering the cellular structure of the tumor, it seemed very possible that recurrence might take place at some time, even though the original course of the disease had been very slow.

Examination of the patient in September, 1904, sixteen months after the first operation, showed a barely visible scar except for a slight notch at the mucous border of the lip. The anterior wall of the upper jaw had reformed so that this part of the face appeared normal; both nares were free, and the septum was back nearly in its normal position. The sulcus between the alveolus and the cheek was firmly healed without any sinus. There was slight varicosity of the lower lid, and along the infra-orbital ridge could be felt a slight, irregular thickening. Just above the inner canthus a small bony prominence could be felt but not seen. There was no pouching of the

palate. The voice had only a faint trace of the hollow sound that follows removal of the upper jaw. The tears flowed normally through the duct instead of over the cheek as was the case before operation. The eye was still prominent and turned outward, but the globe was normally covered by the lids on pressure. It could not be turned inward beyond the median line. Apparently sight was normal, although the right eye was commonly made use of. The patient had been entirely relieved of the headaches that harassed her before operation, and she had been working steadily and gaining weight for several months. During the winter she felt the cold very much in the left side of the face. There was no evidence of return of the growth, but the result in restoration of the globe to its normal position was a disappointment.

MEDICAL PROGRESS.

MEDICINE.

Meningismus Typhosus and Meningotyphoid.—Three interesting cases of typhoid, accompanied by symptoms of meningitis, have been observed by C. STÄUBLI (*Deutsch. Arch. f. klin. Med.*, Vol. 82, Nos. 1 and 2). The first case was noteworthy in that the lumbar puncture was negative and a suppurative mediastinitis was found at autopsy. The second case was accompanied by signs of cortical aphasia. Owing to the fact that the meningitic symptoms disappeared rapidly without leaving anatomical changes, the condition must be called typhoid meningismus, probably due to functional disturbances, induced by bacterial toxins. The third case was very evidently a meningotyphoid, since typhoid bacilli were found in the purulent cerebrospinal fluid. The distinction between typhoid meningismus and meningotyphoid is of great prognostic importance, since the former may be followed by recovery, while the latter is generally fatal.

Pneumonia and Pregnancy.—ROBERT C. RANSDELL (*Am. Med.*, February 11, 1905) reports two cases. In the first case, pregnancy was complicated by pneumonia and measles. The patient was delivered of a stillborn child on the third day of pneumonia and died on the sixth. In the second case pregnancy was complicated by pneumonia and the presence of a large uterine fibroid. The patient was delivered of a healthy full-term child on the third day of pneumonia and died on the eleventh day. From a careful study of his own cases and those from the literature the author concludes the death rate is appreciably higher in the pregnant woman than in the ordinary patient. Abortion takes place in more than half the cases. The mortality is much higher in the last three months of pregnancy than in the first six. The causes of death can be attributed to (*a*) diminution in hemoglobins, (*b*) degenerative changes in heart muscle, (*c*) overloading of the right heart and pulmonary circulation after birth. The large percentage of abortions is due to accumulation of carbonic acid in blood.

Pathogenesis of Banti's Disease.—Owing to the fact that several cases of Banti's disease, observed by F. UMBER (*Zeitsch. f. klin. Med.*, Vol. 55) were perfectly cured by splenectomy, this author firmly believes in a toxic cause for this disease. In one case, the extirpated spleen showed a deposit of pigment and an enormous overfilling of the sinuses and capillaries with blood, while the arterioles gave evidences of hyaline degeneration. In a piece of the liver which had also been removed, the periportal connective tissue was rich in lymphocytes. The chief clinical symptoms were enormous splenic tumor, hypertrophy of the liver, moderate jaundice and anemia with morphological changes in the erythrocytes. The number and relative proportion of leucocytes was normal. After removal of the spleen each symptom disappeared rapidly, so that the toxic agency was undoubtedly present in this organ. The second case coincided in every way with the first.

Simultaneous Occurrence of Syphilis and Tabes.—From a large number of cases on record, C. ADRIAN (*Zeitsch. f. klin. Med.*, Vol. 55) concludes that with pronounced tabes. the syphilitic virus may still continue active within the body, so that a combination of manifest syphilis of the skin or internal organs with typical tabes is not of such rare occurrence. It seems that syphilitic spinal meningitis is particularly common. With late occurrence of tabetic symptoms. active syphilis is less common; the combination is more frequent in the male sex, since syphilis is here more frequently encountered and the disposition to posterior degeneration is greater. Since tabes appears later in the majority of cases than tertiary lues, a somewhat more favorable prognosis may be made where both conditions are combined, since the process may often be arrested by active antisyphilitic treatment.

Relation of Trauma to Diabetes.—After carefully reviewing the entire literature of diabetes supposed to be caused directly by trauma, W. KAUSCH (*Zeitsch. f. klin. Med.*, Vol. 55) comes to the conclusion that no relation exists between the two. Many alleged cases belong to the so-called "diabetes decipiens," or diabetes without symptoms other than glycosuria, and the presence of sugar was here only detected when the urine was accidentally examined after the trauma. It is true without doubt, however, that different forms of glycosuria, from alimentary glycosuria up to the severest diabetes are observed after injury. The mildest forms are seen most frequently and are especially common after injuries to the skull. Since the sugar generally disappears rapidly, such cases cannot be called diabetics. Where the glycosuria is paramount, it is likely that the condition has already persisted for some time, but has become aggravated by trauma.

Change in Size of Heart on Change of Position.—On skiagraphing the heart, F. MORITZ (*Deutsch. f. klin. Med.*, Vol. 82, Nos. 1 and 2) has repeatedly observed that the shadow is considerably smaller if the patient stands, than when he lies down. The effect is not a purely optical one since the heart descends in the upright position of the body and shortens somewhat in the transverse and sagittal diameter. Even though the long axis lengthens slightly, the entire anterior surface will be smaller. The correctness of this observation on the human being has been proven without doubt by animal experiments. The change in size and volume is partially due to descent of the diaphragm, with the traction it exerts upon the pericardium, partially to the hydrostatic action of the upright position. The inspiratory narrowing of the orthodiagraphic shadow is also due to real diminution in size. It follows that every exposure should be made with the patient in the horizontal posture. Other advantages of the latter are: The respiratory movements are less extensive and the heart is more regular, the diaphragm occupies a median position and is not affected by the liver and intestines, the abdominal wall is relaxed, and weak individuals are less fatigued by long exposures.

Intermittent Polyuria in Addison's Disease.—During the twelve months that a patient with Addison's dis-

ease, in the practice of E. BENDIX (*Deutsch. Arch. f. klin. Med.*, Vol. 82, Nos 1 and 2) was under careful observation, the course of his illness varied considerably. At times, the adynamic condition was so pronounced that he could not get up or eat without assistance; at the same time loss of body-weight and psychical depression made their appearance. From time to time, the patient suffered seriously from gastro-intestinal crisis, marked by tenderness and tension of the abdomen, combined with vomiting and singultus. The most peculiar symptom was an intermittent polyuria, for which no cause could be detected. At autopsy, both suprarenal glands were in a state of complete caseation.

Intravital Stimulation of Autolytic Processes in the Body.—According to D. HEILE (*Zeitsch. f. klin. Med.*, Vol. 55), the action of iodoform on tuberculous abscesses and of the Roentgen rays on diseased tissues in general, is best explained by an increased autolysis. Ordinary pus from a cold abscess will not digest a flake of fibrin or give the biuret reaction, but pus from other sources or tuberculous pus from a cavity which has been treated for some time with iodoform emulsion, will readily dissolve fibrin and give a positive biuret, since there is sufficient ferment present to disintegrate the albuminous principles. This ferment is derived from the nuclei of the leucocytes, since the amount of purin bases in ordinary pus and in tuberculous pus after treatment, is much higher than in tuberculous pus before treatment. It follows that the chief beneficial action of iodoform is a chemotactic one. The Roentgen rays also stimulates autolysis. If the spleen of a rabbit whose abdomen has been exposed to the rays for half an hour be examined after twenty-four hours, it will be found that autolysis has advanced much further than in a control spleen. The urine of patients exposed to the Roentgen ray contains more uric acid and more purin bases than before the treatment. The cause of this phenomenon is an increased breaking-down of body cells combined with chemotoxis and destruction of the emigrated leucocytes.

Perforating Ulcer of the Foot.—ADRIAN (*Gazz. deg. Osped.*, January 24, 1905) makes a study of 445 cases of perforating ulcer. The course is as follows: (1) Formation of a callosity. In consequence of a slight traumatism, such as a prolonged walk, a hemorrhage takes place under the corn, and a thinning of the horny layer appears until it gradually passes into the second stage of the formation of an ulcer. (2) The ulcer forms a sinus to the bone. Other clinical manifestations are alteration of sensibility within the ulcer, later hyperproduction of epidermis; alleviation of the secretion of sweat, inflammation of the bone and joints. These ulcers are rare in children. The etiological factors are as follows: (1) Mechanical theory, compression of the foot by shoe in some one place. (2) Change in the blood-vessels of the toe. (3) Nervous causes. It is often difficult to deny an association of a perforating ulcer with a peripheral neuritis. A large number of cases show some long-standing lesion of the sciatic nerve or its branches, in which case an anesthesia of the sole of the foot may persist. Fracture or dislocation in the leg above may cause this. Rheumatism, arthritis deformans or flatfoot may cause a perforating ulcer. Disease of the central nervous system, especially tabes dorsalis, syringomyelia, general paralysis and tumor of the spinal cord will produce perforating ulcer. In tabes it often appears in the pre-ataxic period. Unlike the ulceration occurring in diabetes, there is no tendency to spread on the surface. The prognosis should always be reserved.

Prognostic Factor in Pneumonia.— In the course of his investigations into the nature of the sputum septicemia in animals A. Fränkel showed many years ago that the rabbits which were used in his experiments exhibited a varying degree of susceptibility when injected with the sputa of pneumonic patients. Of twenty animals which were thus treated with the sputa from as many different individuals ten died, presenting the typical picture of sputum septicemia, while ten others remained either unaffected or died from other causes. Similar results have since been obtained by other observers. No systematic examinations, however, were made regarding the virulence of pneumonic sputa at different stages of the disease, until quite recently, when STÜRTZ (*Zeitschift f. klin. Med.*,) was prompted to take the matter up after noting that mice which had been inoculated with the sputa of clinically severe cases of pneumonia succumbed more rapidly than those which had been injected with material from lighter cases. The results which he obtained are very interesting and suggest the possibility of determining the prognosis in a given case by animal inoculation. The technic employed is very simple: The patients are instructed to repeatedly rinse the mouth with water, when the sputum masses which are next expectorated are received in sterilized spit cups. A white mouse is then subcutaneously inoculated with 1 c.c. and kept under observation. Following this procedure Stürtz ascertained the important fact that the virulence of the sputum as measured by its effect upon the mouse, in the course of an individual case, is directly proportionate to the intensity of the morbid process in the corresponding patient. The result obtained in the mouse may therefore be regarded as an approximate index of the virulence of the pneumonic process in a concrete case. It was thus found that in especially severe or fatal cases the sputum virulence was high, resulting in the death of the mouse in from eight to ten hours. Cases of moderate severity, on the other hand show an initial virulence of from eleven to twenty hours, while in light cases the animals only succumb after from twenty to forty-five hours. Exacerbations of the pneumonic process are associated with corresponding exacerbations of the sputum virulence, and it is important to note that the occurrence of such changes is demonstrable by the animal experiment earlier than by the physical signs; this seems to be especially the case in very severe and highly virulent cases. Bearing in mind how often it occurs that a patient with pneumonia who has just passed the climax of hepatisation in one lobe, and whose heart is already profoundly enfeebled, is unexpectedly brought to a most tension of the process, even though it only be lobular in kind, the value of such a method, as suggested by Stürtz is self-apparent. In severe cases it would indeed be well to inoculate the mouse every morning and every evening, so as to be warned by the extension of the morbid process in time. Stürtz's conclusions regarding the value of the method from the prognostic standpoint are based upon an investigation of twenty cases only. But this work has been carefully done and deserves credit.

OBSTETRICS AND GYNECOLOGY.

Rupture of the Uterus During Delivery.—After a most thorough review of this subject N. IVANOFF (*Annal. de Gyn. et d'Obstet.*, October, 1904) gives the following as his conclusions: (1) The majority of ruptures in placenta previa are due to violence on the part of the accoucheur; (2) This is also true in cases of transverse presentation; (3) If in transverse presentations, tentative maneuvers are employed to deliver, when version is finally attempted, there is a

predisposition to rupture. (4) Braun's hook for decapitation, a most imperfect instrument, should not be used where rupture has taken place. (5) A large proportion of the ruptures begin on one or the other side of the cervix; they have a tendency to spread longitudinally and to extend into the cellular tissue of the broad ligaments. (6) In the case of hydrocephalia, besides the distention and wounding of the uterine walls, rupture often takes place because the condition is not recognized until it is too late to prevent its occurrence. (7) In cases where there is a constriction of the body of the uterus, a rupture may occur because of the distention of the lower part of the uterine wall and because of the increased pressure produced against the fundus in the directions where there is present an abnormally reduced cavity, so that even an abnormal convexity is present, making more or less violence in the concavity of the fundus. (8) A contracted pelvis predisposes, naturally, the uterine walls to rupture. (9) Spontaneous ruptures in flat pelvis are almost always produced in the supravaginal portion of the cervix and transversely. The time elapsing from the beginning of labor and the rupture is ordinarily very short. (10) The so-called cases of "colporrhexis," in the majority of cases, are only transverse ruptures of the supravaginal portion of the cervix. (11) In contracted pelves, if there have been many difficult and operative deliveries, the treatment along conservative lines presents dangers especially if palpation establishes beforehand the existence of scars in the supravaginal portion of the cervix. (12) One of the predisposing factors to uterine ruptures, other than modifications of the uterine wall produced by the cicatrices already mentioned, and by malignant tumors and by insufficient development of the organ, etc., is inflammatory cellular infiltration. (13) All the modifications of a pathologic nature involving the elastic tissue of the uterus, by which some authors wish to explain the production of rupture, are in reality physiological modifications which supervene during pregnancy, delivery, and during the puerperium. No one has ever found true pathological changes in the elastic tissue of a ruptured uterus. (14) The conservative method of treatment of rupture of the uterus gives a result twice as favorable as that from surgical intervention. (15) The treatment of every rupture during delivery should be operative, for that method alone gives us the possibility of checking hemorrhage, definitely (to ward against secondary hemorrhage) and to ascertain the cause of the condition.

An Acephalic Monster.—A number of these cases have been reported, most of them of three main types: Acephalus monobrachius, paracephalus and myacephalus. Annie C. Gowdey (*Brit. Jour of Obst.*, November, 1904) presents the following case which is unique in that it possessed both upper limbs though in a more or less immature state. In this case the mother was delivered of a full term fetus at the same confinement with the monster, the former being born first but at an easier delivery. There was but one placenta with two umbilical cords and only one chorion. The monster was absolutely without any semblance of a head. At the upper end there was a circular line of hair with a central depression. The forearm was absent in the right upper limb, the hand, which possessed only three digits, being in contact with the lower end of the humerus. The left upper limb consisted of a very short humerus, a forearm, and hand with five digits. Talipes varus was present and marked in both feet. There were five toes on the right foot—all webbed; the left foot had only three toes. The mother was highly nervous and but twenty-one years old. She had had one previous child by another husband, which was five years old, strong and healthy. There was nothing of note in the mother's family history, on the father's side there was a suspicion of tuberculosis. The sex of the monster, like the majority of others of its kind, was female. According to Ballantyne, fetal malformations are associated with tubercle in the parents; it is interesting to note that the father's history in this case was suspicious.

Cancer of the Body of the Uterus.—The female sex is much more often affected by malignant disease than the male, and of all the organs of the body, says Thomas Wilson (*Brit. Jour. of Obstet.*, October, 1904) by far the most frequently attacked is the uterus. The report in the *Birmingham Medical Review*, published May to July, 1900, shows that 4,972 persons died of cancer in ten years in a population of 750,000. 60.8 per cent. of the deaths from cancer occurred in females. From the figures in the report it would seem that one out of every four deaths from malignant diseases in women is due to involvement of the uterus. It would seem that carcinoma chiefly affects women who have passed the menopause, and that the age at which the menses cease often departs from the normal but not in any definite direction. Cancer of the body of the uterus is usually described as beginning in one of two ways, either from the glands of the uterus or from the squamous epithelium. The growths in the body of the uterus may be either diffuse or localized. They may also be classified according to the characteristics of the surface of the tumor, which may be smooth and nodular, coarsely papular, or closely set with fine filiform villous projections. None of these forms corresponds to a distinct histological variety of tumor. The exact origin and, especially the nature of the tumor germ or matrix, which presumably gives rise to the tumor, is therefore entirely a matter of inference. There can be distinguished local and remote paths of extension of cancer. The local invasion takes place (1) by simple continuity, alveoli spreading out along the lines of least resistance, in the case of the uterus, in the intersection between the connective tissue and muscular fibers, and in the lymph spaces; or (2) by some more extensive form of local spreading which takes place along the blood and lymphatic vessels that remain in the uterus itself. The remote paths are the lymphatic and blood-vessels which drain the uterus, either of which convey emboli from the original growth. Recurrence after operation may be understood by a reference to the modes of spread just described; thus the recurrence may be local; (1) at the site of the original growth or (2) at a little distance from the former site but still within the limits of the organ; (3) recurrences may take place at any part along the course of the lymphatics leading from the organ, or in the lymphatic glands. (4) remote metastases may occur from emboli from the primary growth having been carried out by the blood stream and lodged in some of the remote organs or tissues. When fibroids are present in a uterus, if the menses have been stopped for a time and then begun again, or if the bleeding increases, or if a profuse serous, mucous or colored discharge makes its appearance, especially at the climacteric, the cavity of the uterus should be explored without delay,

and in case of doubt the uterus should be removed. It is important to recognize that expert knowledge is necessary both in the use of a curette in these cases and in the examinations of the curettings afterward, and it is to be desired that suspected instances of the disease shall be investigated by competent observers at the earliest possible moment. In this way only can the best results of treatment be obtained. The occurrence of true cancer in the body of the uterus in women under forty-five years appears to be comparatively rare.

A Lithopedion Forty-one Years in the Abdominal Cavity.—Though many similar cases have been recorded, F. W. N. HAULTAIN (*Brit. Jour. of Obstet.*, October, 1904) has only been able to find nine cases in the literature where the tumor has been present in the abdominal cavity over forty years. A tenth case is reported by this author with the following history: The patient, aged seventy-one years, became pregnant when thirty years of age, and when at full term went into labor without tangible result. The abdominal swelling remained, and for some time gradually diminished in size. In February, 1904, the patient died somewhat suddenly of cardiac disease. On post-mortem examination a large lithopedion, placed behind the uterus, and densely adherent to the intestines, was found. The fetus was disposed with the head downward, but no true relation could be determined. The patient was well aware of the presence of the fetus all her life, but aside from occasional attacks of abdominal pain she enjoyed good health and performed her duties until shortly before her death. Menstruation returned a few months after her spurious labor and continued to the age of forty-five years. There had been no subsequent pregnancies. The fetus had preserved to a remarkable degree its normal configuration. Flexion still existed; the limbs to the finest digits were in absolute preservation, and the nails projected over the finger-tips. The tissues were contracted and calcarious over the limbs, but on the back scalp and breech, they seemed of normal thickness. There was no sac. In the majority of cases of advanced ectopic pregnancy decomposition results with subsequent disintegration and passage of the fetal membranes through the hollow viscera; and it is difficult to discover the reasons which in one case tend toward calcification and in the other to disintegration. Prolonged retention of the fetus in a normal uterus with resulting lithopedion has not as yet been conclusively proven, but Pearson reports a case where one remained in a rudimentary horn of a double uterus for twenty-six years.

Rupture of the Uterus.—The observation of NIKONOFF (*Roussky Vrach*, No. 46, 1904) is based on five cases of rupture of the uterus occurring during labor, from which the following conclusions are drawn: (1) Besides the two well-established varieties of rupture of the uterus that take place during labor, namely, spontaneous and traumatic, there is also a class of cases where the rupture extends from the anterior wall, of a purely traumatic forcible origin. (2) In some exceptional cases one rupture takes place slowly and gradually, and is not accompanied either by any very prominent reaction or profuse hemorrhage; in such cases the diagnosis presents some difficulties; thus, in the author's first case, that of an old multipara, labor continued for thirty hours before the symptoms became sufficiently distinct, nor were there any cessation of pains or the appearance of acute pains that usually signalize the beginning of rupture of the uterus; in fact, the woman was able to sleep quietly for some six hours with part of the fetus in the peritoneal cavity. (3) The diagnosis of a complete rupture of the uterus with the escape of the fetus into the peritoneal cavity presents usually no difficulty and can be made with the aid of ordinary palpation; the anamnesis and accompanying phenomena but tend to verify same. (4) Internal examination often fails to supply us with exact data (before the extraction of the fetus), so that in certain cases is may be omitted altogether, especially when there exist serious objections thereto, such as the possibility of infecting the deeper portions of the sexual apparatus. (5) The prognosis of rupture of the uterus depends on many conditions which must be considered in every individual case; it may be stated in a general way that it is somewhat more favorable at present than it was some time ago; the mortality should not be above 40 or 50 per cent., and under favorable conditions it may even be lower. (6) The extraction of the fetus per vias naturales should be avoided until the patient be placed under conditions that admit of a capital operation, if it is at all possible. (7) If operative interference is inadmissible, the fetus should be extracted, and the tear either sewed up or at least tamponed per vaginam. (8) Having prepared for the operation extract the fetus: (*a*) if it be found in the uterine cavity, or if its extraction through the abdominal wound present any difficulty (as, for instance, hydrocephalus), an attempt should be made to extract per vias naturales, and then either tampon, sew up or remove the uterus per vaginam or by abdominal section, in accord with the necessities of the individual case. In case of hydrocephalus it is first necessary to perform perforation of the head and then either extract per vias naturales or make ready for a Cæsarean section; (*b*) if the fetus be found in the abdominal cavity, a laparotomy should at once be resorted to without any preliminary attempt at extraction through the natural paths. (9) In the majority of cases it will become necessary to remove the uterus either wholly or partially; in some exceptional cases it may be closed with sutures. (10) After the operation extreme asepsis is absolutely required as regards the abdominal cavity, the best being a copious and frequent flushing with sterilized physiological salt solution. If the uterus is removed or only partially so, a very wide drainage tube should be inserted with its end through the vagina. (11) In the event of a threatened postoperative paralysis of the intestine, large doses of atropine, subcutaneously, should be tried. (12) If there be observed after operation any symptoms of sepsis, the exudate should be investigated bacteriologically, and, if necessary, resort should be had to specific sera.

Infantile Intestinal Diverticula.—The diverticulum ilei may take origin in almost any portion of the ileum, but the majority appear at or about the junction of the jejunum and ileum. J. W. HYDE (*Am. Jour. Obstet.*, December, 1904), having made a study of this condition, states that the diverticula may end in a blind pouch which may be attached to some portion of the interior abdominal wall. In other instances there may be a fistulous exit at the umbilicus as well as above or below this point. It is not clear why diverticula have been found more frequently in males. The accoucheur should always examine the cord carefully before and after separation, and when

the character of a fistulous exit indicates the presence of a diverticulum, the best plan of treatment is the radical operation at as early a date as conditions will permit.

Dangerous Hemorrhage from the Urinary Tract During Pregnancy.—Hemorrhage from sources other than the genital tract during pregnancy are rare, the most frequent cause being a rupture of varicosites. PAUL V. KUBINYI (*Centralbl. f. Gyn.*, No. 48, 1904) relates the history of a patient, who in the eighth month of her pregnancy, after lifting a heavy weight, suffered from a severe hematuria with subsequent retention of urine. Catheterization for three days only brought away a few blood clots, the patient had headache, general malaise and vomited a few times. Diagnosis of rupture and tumor of the bladder had been successively made by different physicians. Digital examination confirmed the writer's diagnosis of retention from the formation of a blood clot at the neck of the bladder, the urethra having been previously dilated by Hegar's dilators up to No. 17. After removing half a liter of foul-smelling blood clot, several liters of urine came away. A few days later cystoscopic examination showed the presence of a large blood vessel running transversely across the neck of the bladder. In considering the cause of the rupture, changes in the vessel walls and a sudden increase of blood pressure were thought to be the important factors. The possibility of the kidney as the source of the blood was excluded because of the presence of the large clots and the absence of other signs of nephritis.

Transmission of Toxins from Mother to Fetus.—The manner in which toxins during pregnancy exert their effects on the fetus, has been studied by C. SCHMIDLECHNER (*Zeitschr. f. Geb. u. Gyn.*, Vol. 52, No. 3). For the purpose of determining whether in case the mother becomes ill, the toxin produced is transmitted to the fetus and what are the changes resulting in the organs of the latter, he injected diphtheria toxin in pregnant guinea-pigs. The results of nineteen experiments are reported as follows,—intoxication of the mother is followed by a transference of the toxin into the blood of the fetus and produces in the organs of the latter the same changes as in those of the mother. The intensity of the changes depends on the amount of toxin which has entered the body of the mother. The effects of the toxin are developed more rapidly in the fetus than in the mother and to a higher degree. The transmission of toxins can take place only through the medium of the placenta and requires very little time. The surplus toxin which finds its way into the fetal circulation, remains unchanged for a time. If some of this fetal blood is injected into another animal, it produces the same changes in the organism of the latter as in that of the original animal and its young.

Spinal Analgesia in Gynecological and Obstetrical Practice.—This method of anesthesia with tropacocaine has been used by M. STOLZ (*Archiv f. Gyn.*, Vol. 73, No. 3) in 155 gynecological and 25 obstetrical cases with very satisfactory results. The conclusions arrived at in his very complete article are as follows. (1) Spinal analgesia with 0.05 to 0.08 of tropacocaine dissolved in the cerebrospinal fluid, is not dangerous and only in exceptional instances is followed by any unpleasant after-effects. Larger doses increase the effect both in length of time and intensity; larger amounts of fluid the extent of the area of analgesia. Therefore as many centigrams of cerebrospinal fluid are to be employed for the solution as the number of centigrams of tropacocaine it is intended to inject. (2) For operations around the anus and external genitalia which do not consume longer than forty-five minutes, an injection of 0.05 of tropacocaine will be sufficient. For longer operations, from 0.07 to 0.08 may be necessary. Abdominal section could be done without disturbance in 56.3 per cent of the cases. In 30.9 per cent general narcosis was found necessary in addition and 12.7 per cent spinal analgesia was found insufficient from the outset. Inhalation anesthesia as a supplement to the spinal form is very satisfactory, and only a very small quantity of the anesthetic is necessary. (3) Lumbar puncture is accomplished with more difficulty in pregnant, than in non-pregnant women, because it requires special attention to antisepsis and special skill in its application, which is not usually possible outside of the hospital. It is therefore less practical than the inhalation anesthesia. The injection of 0.05 tropacocaine during labor produces analgesia of the external genitals for an hour afterward. The labor pains are much affected but the abdominal pressure is absent and only is brought into action by voluntary effort. In two cases of eclampsia, no effect was observed on the convulsions.

Use and Abuse of Curettage of the Uterus.—E. K. BROWD (*Med. Rec.*, January 28, 1905) says that the apparent simplicity and security of the operation has led to the frequent performance of curettage of the uterus in cases in which the procedure is not only of no service, but may even be directly contra-indicated. It is useful in cases of endometritis not associated with pelvic inflammations, exudates, or diseased adnexa, in subinvolution of the uterus or retained secundines, in endocervicitis as a prophylactic against carcinoma, in mole pregnancies and in all cases of endometritis of so-called hyperplastic nature. In post-partum infections there is room for much judgment, for while saprophytic cases with retained membranes, etc., are benefited by curettage, the measure is distinctly contra-indicated if the infection is of the septic type. Curettage should not be regarded as a routine treatment for sterility, for it may aggravate existing pathological conditions, while the danger of perforation is very great in curetting for syphilitic, tuberculous, sarcomatous or cancerous degeneration of the endometrium. It should never be performed without an anesthetic, owing to the danger of perforation due to sudden movements of the patient, or in dirty surroundings that cannot be rendered aseptic. A number of cases are cited in which disregard of these rules was followed by serious consequences.

THERAPEUTICS.

Value of Hetol in Tuberculosis.—Very many contradictory articles in literature upon the value of hetol in arresting a tuberculous process, show that the question is not yet definitely decided. O. PRYM (*Münch. med. Woch.*, November 1, 1904) has noticed decided improvement in only five out of 22 cases. Yet the tubercle bacilli never disappeared from the sputum, and the objective symptoms remained stationary. As many as eight cases became decidedly worse and reacted toward injections with high fever. The tolerance seems to vary within very wide limits and the most advanced cases are not always the ones that show the most intense reaction. The author concludes by stating that great care should be exercised in selecting the cases and that constant supervision should be practised. The reports of F. Schrage, contained in the came number are however more favorable. In a third article, H. Frey speaks well of the antituberculous serum of Marmoreck. General toxic symptoms were never observed, the only reaction ever complained of being a local or

general urticaria. The results obtained, while not amounting to real cures, justify an extensive trial of this serum.

Sulphate of Copper Alone, and in Combination with Lime, for the Destruction of Mosquito Larvæ, as a Deodorant, and as a Disinfectant.—A. H. Doty (*Med. Rec.*, January 21, 1905) reports on the results of a series of experimental tests undertaken to determine the question indicated by the title. It was found that a solution containing one pound of sulphate of copper and one pound of unslacked or rock lime (calcium oxide) in ten gallons of water was promptly effectual in causing the death of mosquito larvæ when added in the proportions of one gallon of solution to fifty gallons of the infected water. Solutions of copper or of lime alone were less satisfactory. The result is not due to a toxic action of either of the chemicals, but to the fact that a precipitate is formed which rapidly removes from the water the organic matter upon which the larvæ depend for nourishment and life. This method is applicable only in collections of stagnant and offensive water, where it not only destroys the larvæ, but also deodorizes the fluid, but in swamps or bodies of water covering large areas, other measures are preferable. As a deodorant, the mixture of copper and lime in the proportions stated is the most valuable and practical agent we possess for the purpose. Its action is rapid and permanent, it is practically harmless, is cheap and easily made, and can be employed equally well for deodorizing solids or fluids. The experiments on the germicidal properties of copper sulphate show that it has possibilities as a disinfectant, but no definite statements can as yet be made.

Painful Affections of the Feet; Diagnosis and Treatment.—C. OGILVY (*Med. Rec.*, January 21, 1903) discusses the commoner causes of foot pain, with the appropriate treatment. The diagnosis of "rheumatism of the feet" is often made, but is usually incorrect, the symptoms in most cases being due to some deformity, such as eversion, or flatfoot. In eversion, or what is commonly called "weak ankle," the foot is everted, the internal malleolus projects very prominently, the toes point outward and the line of strain falls to the inner side of the foot, throwing excessive weight in the inner half of the longitudinal arch. This leads to loss of elasticity of the arch, the foot breaks down and flat foot results. Flatfoot in its first stages is not diagnosed correctly in 50 per cent. of the cases, yet an early diagnosis is of the greatest importance, for it is a difficult matter to transform an everted painful foot with a broken-down arch into one which is capable of performing all its functions without pain or discomfort. The treatment may require the use of the Thomas heel, the Whitman plate, the plaster bandage, operation, exercise and massage, singly or in combination, according to the nature of the case. Metatarsophalangeal pain is due to weakness of the anterior arch and is treated by the application of a felt pad and adhesive plaster. Bursitis of the heel is less frequently met with and is treated by hollowing out the heel of the shoe or by dissecting out the bursa. The subject of proper footwear is also considered and the essential points of a well fitting shoe are enumerated.

The Trend of Modern Prescription Writing.—An *Ass'n*, January 7, 1905) on this subject is based on interesting paper by M. C. THRUSH (*Jour. Am. Med.* the examination of 500 prescriptions received in each of two leading drug stores in Philadelphia, the results showing the importance of proper training in this branch and the evidence of apparent neglect. The following conclusions seem warranted: That the trend of modern prescription writing is in favor of proprietary preparations. That the use of polypharmaceutical preparations is diminishing to a great extent and their use is chiefly confined to the older practitioners. That the number of incompatibles observed is greater than it should be. That the metric system is but little employed at the present time in prescription writing, a condition to be greatly deplored. That over one-third of the prescriptions are incorrectly written, and this is especially noticeable among the younger practitioners. That certain non-official preparations are quite popular and that some of these deserve admission to the U. S. Pharmacopœia. That the more educated the physician the greater the use of pharmacopœial preparations, and the greater the tendency to simple instead of complex, non-scientific, polypharmaceutic and proprietary preparations.

Treatment of Phthisis by Iodoform Infusion.—This is not the first communication presented on this very important subject. THOMAS W. DEWAR (*Brit. Med. Jour.*, January 14, 1905) made a preliminary report in the same journal November 21, 1903. In a continued communication, he cites nine cases from which he concludes as follows: They were under no restraint and the diet and hygiene used was that most suitable to each particular one.' Five consecutive patients were remarkably improved, and by this the author means that there has been the usual gain in weight and a freedom from tubercle bacilli which in every instance had been plentiful in the sputa. It may, as he says, have been coincident, but if so, it was a remarkable one. In the sixth and seventh cases the advance was certainly retarded. The author believes that the contention in his first paper that the continuous injection of an etheral solution of iodoform was followed by improvement, that it was innocuous in moderate doses and powerful to arrest pulmonary tuberculosis, was correct.

Treatment of Leucemia with Roentgen Ray.—The experience of several authors on the use of the Roentgen rays in leucemia, is contained in the *Münch. Med. Woch.*, January 24, 1905. In both cases of E. MEYER and O. EISENREICH the general condition improved wonderfully after a total exposure of about 500 minutes and with it, the body-weight, percentage of hemoglobin and number of red cells increased so that the patients could again earn their living. The number of leucocytes dropped from several hundred thousand to near normal, but the spleen diminished in size appreciably in only one. In the patient of W. Wendel, marked improvement was observed only when the sternum and the epiphyses of the long bones were exposed. It is doubtful if a permanent cure can be obtained even with the Roentgen rays, but there can hardly be any question that the disease will be kept effectually under control. Good results in four out of five cases are also reported by D. Schieffer.

NEUROLOGY AND PSYCHIATRY.

Multiple Sclerosis.—It seems that among individuals living in the country, the most common organic disease of the nervous system is multiple sclerosis, while the inhabitants of cities are more frequently affected with tabes. The classical type of multiple sclerosis as described by Charcot is rare. Thus, P. MORAWITZ (*Deutsch. Arch. f. klin. Med.*, Vol. 82, Nos. 1 and 2) found scanning speech in only 12 per cent., nystagmus and tremor in about 50 per cent. As opposed

to hysteria, eye-disturbances are rather frequent, thus, atrophy of the optic nerve was seen in about 40 per cent. Extensive disturbances of sensibility are, however, rare; usually only a hyperesthesia is found which involves only the distal portions of the extremities. The abdominal reflexes are often exaggerated in hysteria, but lost in about 50 per cent. in sclerosis. In the latter condition, the Babinski reflex is often positive, showing that an organic affection of the nervous system is present. Bladder disturbances in sclerosis are usually transient, but recurrent difficulty in urination or moderate incontinence, while in hysteria one often sees ischuria, developing acutely and intensely after a psychical trauma.

Cryoscopy in Epidemic Cerebrospinal Meningitis.—J. H. Bailey (*Med. Rec.*, February 11, 1905) made a cryoscopic study of sixty-nine specimens of cerebrospinal fluid, and though the results are not yet available for practical purposes they have scientific value. Using T as a symbol for the total freezing point of the cerebrospinal fluid, some of the conclusions reached are as follows: Upper limit of T is -.815; lower limit, -.50; a variation of -.315. The vast majority of cases, however, 79 per cent., ranged from -.52 to -.64, a variation of only -.12. Average T is -.575, very close to the normal freezing point of blood. T oscillates much less than the freezing point of urine. The greater part of T is due to the sodium chloride content. T varies not only in specimens from different cases, but, also, in specimens from the same case at different times. T is not of any prognostic significance; some of the patients that recovered showed a high T, others a low T; while the same is true of several cases that terminated fatally.

Hysteria in Surgery.—There is no disease that simulates or "mimics" so many other diseases as hysteria, which may throw off his diagnostic balance even the most experienced clinician. N. A. Velyaminoff (*Prakt. Vrach*, Nos. 47, 48, 1904) presents a highly instructive account of his experience with hysteria as met with in a surgical practice based on observation extending over many years. Hysterical phenomena in the gastro-intestinal sphere are encountered throughout the entire length of the tract beginning with hysterical dysphagia down to disturbances of the anal opening. Hysterical spasm of the pylorus is a condition by no means unknown, which may tax the ingenuity of the most skilful diagnostician, as gastro-enterostomy has been performed more than once under the impression of organic disease of the pylorus. The author describes a case of a young woman who presented an abdominal tumor in the lower right abdomen the size of a fist with the symptoms of intestinal stricture accompanied by increased peristalsis of the part above the constriction. During the examination, however, the patient "removed" the swelling to another part of the abdomen; this was then a case of hysterical spasm of the intestine brought on, as was shown later, by some unpleasant sensation, as, in this instance, by the sight of a lemon. A somewhat similar case was that of coccygodynia, which was mistaken for anal fissure for which appropriate treatment proved unavailing. Nevertheless in differentiating hysterical affections that may simulate organic surgical disease we must keep in mind the following points: The hysterical symptoms are much less prominent and distinct; they are not constant but are changeable as to intensity; the degree of intensity is variable, while the entire picture of the disease is easily and frequently changeable, inasmuch as evidently important symptoms disappear, or become exaggerated under some mental strain or in connection with the sexual functions. Moreover, a hysterical patient always presents various hysterical stigmata in addition to the symptoms of the given affection which assist greatly in differential diagnosis. The author describes at some length a few interesting cases of hysterical spinal disease simulating spondylitis and scoliosis. The French have long since established the existence of what they call "rachialgie hysterique," which is practically identical with spinal irritation of the old authors and traumatic neurosis and railway spine of the English and American authors. In one of the author's cases, that of a girl of twenty-six years, burdened with tuberculous heredity, though living under the most favorable circumstances, the question of a tuberculous spondylitis could only be excluded after a most thorough examination and observation extending over some time (for particulars of this most interesting case the reader must be referred to the original), while in the other case, also that of a woman, of twenty-five years, repeated examinations and close and unremitting observation in the hospital established eventually the positive diagnosis of a hysterical kypho-scoliosis. The author considers the pseudo-kyphotic curvature of the spine or rather the swelling of the vertebræ that simulates in these cases curvature as due to hysterical angioneurotic edema of the soft parts surrounding the vertebræ and possibly to edema of the periosteum. To the same class belong cases of hysterical scoliosis, as observed by Albert and Hoffa, and two of which are reported by the author in his article. Of equal interest and importance are the cases of hysterical swellings of the breast, what the French call "sein hystérique," of which the author observed 63 cases during the last twenty years. Of these he distinguished tumors that invade but a few lobules, and those that attack the entire mammary gland, the latter rather less frequent. The former may be of various sizes and consistency, though this may change quite often. They are usually smooth, but at times also lobulated. As distinguished from real neoplasms these tumors pass gradually into the healthy tissue, and are usually very movable; besides the tumor there are also found other smaller lobes in the breast. The patients frequently complain of pain of a neuralgic character (mastodynia) spreading along the intercostal nerves and to the corresponding upper extremity. The author distinguishes four types of patients in whom this condition is encountered: (1) Girls between twenty and thirty years of age, of strong sexual tendencies, in whom marriage and pregnancy usually causes the disappearance of the tumor. (2) "Psychopathic" girls between twenty-five to thirty-five, undoubted hysterical subjects with degenerative stigmata, dissatisfied with their maiden state, constantly dwelling on sexual matters. (3) Married women of unfortunate family life, constantly excited by old and impotent husbands, the so-called Balzac woman suffering from chronic inflammatory conditions of the sexual sphere and, finally, (4) old hysterical women, addicted to the reading of medical works of a doubtful character, and having seen cases among friends and relatives. Therapeutically, it is of the highest importance to abstain from operative interference, the more so, as, strange to say, trauma predisposes to the development of malignant growths, as the author observed in four cases;

still extreme circumspection should be exercised, especially when dealing with women in the "cancer" age.

The Epileptic Criminal; with Report of Two Cases.—T. H. Evans (*Med. Rec.*, February 4, 1905) gives the histories of an epileptic who, in a period of depression, committed a murder, and of a woman belonging to the borderland epileptic type who, in an access of jealousy, attempted to kill her lover. Taking these instances as a text the author concludes that: (1) The essence of crime is in the intention, and the ability not so to intend. (2) No punishment is adequate to any crime; restraint not only after a crime has been committed, but efforts to hinder any such deed, is preferable always. (3) The victims of epileptics ought to have legal ground for suit against the community as well as those in charge of the epileptic. (4) Reservations ought to be established, in which degenerates and the normally irresponsible could oe colonized and treated, allowing all possible freedom of initiative for useful and safe pursuits therein. (5) Marriage of neurotics should be regulated. We can afford to lose the few sane descendants if we could also cut out their degenerate progeny. Democratic principles encourage, in this as in other matters, the average, and discourage the exceptional or abnormal—great or small. (6) All epileptics are to be viewed with suspicion. Many cases of psychic erraticism, cranks, and mistaken reformers, are to be taken as examples of epileptic psychic equivalents. The major forms of epilepsy may not prove so dangerous to the community as these veiled manifestations.

PHYSIOLOGY.

On the Presence of Tyrosinase in the Skin.—The relation of pigment to the development of certain malignant neoplasms, particularly melano-sarcoma, has been partly illuminated by recent discoveries on the origin of animal pigments. In 1901, v. Fürth and Schneider showed that a tyrosinase could be obtained from the blood of certain insects. This tyrosinase acted upon a chromogen present in the blood, and converted it into a melanin-like substance. When a solution of tyrosin in water was treated with the ferment a melanin-like body was also obtained. Florence M. Durham (*Proc. Royal Soc.*, December 10, 1904) in further investigations in this field, finds that an extract can be made from the skins of certain pigmented vertebrates (rabbits, rats, guinea-pigs, chickens), which will act upon tyrosin and produce a pigmented substance. This action suggests the presence of a tyrosinase in the skins of these animals. The action of the tyrosinase is destroyed by boiling, does not take place in the cold, is delayed by time, requires the temperature of about 37° C., and also the presence of an activating substance such as ferrous sulphate to start it. The colored substances produced are in accordance with the color of the animals used. Black substances are produced when animals with black pigment in their skins are used, and yellow substance when the skin contains the orange pigment. The colored substances are soluble in alkalis, but insoluble in acids.

Some Physiological Effects of High Altitudes and Low Barometric Pressures.—An expedition was conducted to the summit of Mt. Rosa in the Alps, by A. Mosso, with the object of studying some of the effects of high climates upon the physiology of respiration. The results of these investigations are reported in the *Arch. Ital. de Biol.*, September 7, 1904, by A. Mosso, G. Marro, G. Galeotti and A. Aggazzotti. In dogs, as in men, the rarefied air of the Alps does not produce an increase in the frequency and depth of respiration but rather a diminution. There is a diminished alkalinity of the blood and an increase in the number of red corpuscles and the amount of hemoglobin. An increase of temperature causes in dogs a marked polypnea, the respirations reaching 200 per minute. At great altitudes (4,560 m.) the centers that preside over deglutition are functionally modified, manifesting an earlier fatigue and producing more rapid and more active movements in the esophageal musculature. In monkeys as in men the result of the lowering of barometric pressure is to produce sleep and loss of consciousness without any previous excitatory effect, which result shows that the barometric depression does not act like the diminution of oxygen in the blood, nor like the narcotics which always excite the nervous system before depressing it. The effects are due to the diminution in the amount of carbonic acid in the blood. Dogs and monkeys rapidly adapt themselves to barometric depression. The rarefied air causes a slight increase in the amount of carbonic acid excreted, although the amount of oxygen absorbed remains constant. At low barometric pressures the organism has a diminished sensibility to the effects of carbon dioxide, that is, the exciting action of this gas becomes less intense. At the same time the force of the respiratory movements is diminished, showing a mild degree of paralysis of the nerve centers of respiration.

Further interesting observations are reported in *Arch. Ital. de Biol.*, October 31, 1904, by these same investigators. At the summit of Mt. Rosa inhalations of oxygen diminish the depth of respiration and decrease the frequency of the pulse, while they had no effect at the sea-level. Carbonic acid, also, when breathed pure in a rarified atmosphere and in small doses, also causes a slowing of the pulse. In the presence of a lowered barometric pressure, the percentage of CO_2 diminishes in the pulmonary alveoli. The diminution of the tension of the oxygen in the atmosphere does not suffice to explain the sleep and the other phenomena produced by strong barometric depressions. It is found that alcohol produces physiological effects at high altitudes which are different from those produced at the sea-level. The administration of 40 c.c. of alcohol at Turin caused a slight rise of the rectal temperature, an increase in the force of the cardiac impulse, and a relaxation of the arterial walls, with the production of a true dicrotism; there was also a considerable increase in the frequency of respiration which at the same time became less profound; there was an increased amount of air breathed in a unit of time. At high altitudes alcohol does not cause an increase in the amount of air breathed in a unit of time. There is no change in the pulse, in the blood-vessels, or in the mechanism of respiration. The subjective sensations are reduced to nil, while at the sea-level the same amount of alcohol produces a state of mental excitation like that of intoxication. Under normal conditions a person can hold his breath for a longer time at high altitudes than at the sea-level. While the administration of alcohol at the sea-level diminishes this period of voluntary arrest of respiration, it has no effect upon the latter at high altitudes. The authors conclude that it would appear that at high altitudes the nerve cells of the sensorium as well as of the circulatory and respiratory centers, become less sensitive to alcohol, with the result that their function is not altered, although the blood may at the time contain a comparatively large quantity of alcohol.

The Substitution of Hydrogen for Nitrogen in the Atmosphere.—The question whether life would be possible if the nitrogen in the air were replaced by hydrogen, was put to an experimental test by A. MARACCI (*Arch. Ital. de Biol.*, October 31, 1904). In experimenting upon various animal species, the author found that in such an atmosphere the consumption of oxygen and the elimination of carbonic acid are greatly increased. Moreover the animals suffer a rapid loss of heat, with the result that the bodily temperature falls several degrees below the normal. The hand, when plunged into such an atmosphere, experiences a marked sensation of cold. These changes are attributed to the fact that hydrogen is a good conductor of heat, a property which goes hand in hand with its metallic qualities. The author believes that death in this artificial atmosphere is produced not solely by the subtraction of heat. He believes that hydrogen and oxygen may combine in the organism and that this combination may not be indifferent to the tissues. The greater rapidity in the oxidations that ensues upon respiring a mixture of oxygen and hydrogen, does not suffice to make up for the loss of heat produced by the latter. The author believes that these circumstances furnish the first instance of death resulting from rapid loss of heat produced by a metal, for the hydrogen surrounding an animal may be compared to a closely-fitting metallic armor.

Metchnikoff's Ideas on Old Age and Disease.—An important exposition of this subject is made by L. LEMATTE (*Arch. de Thérap.*, December 15, 1904). Old age is a sort of disease allied to the changes that accompany atrophy. The same connective-tissue scleroses that occur in old people are also found in the various chemical intoxications (*e.g.*, alcohol and lead). The bacilli of tuberculosis and leprosy may produce a brittleness of the bones which is similar to that which is the result of senility. Old age is not the result of excessive use, but is an expression of a slow auto-infection. In the intestine is to be found the culture medium for those germs whose toxins are the source of senile atrophy. It is well known that birds have a longevity which is greater than that of the majority of mammalia. This is attributed to the fact that birds have no large intestine, in which hordes of bacteria may flourish. Even in old age birds preserve their youthful appearance and agility. The intestinal parasites secrete toxins which in some cases cause a destruction of hemoglobin and of red blood cells, sometimes poison the nervous centers, and sometimes cause an ulceration of the intestinal mucosa. It has been found that the lactic acid bacillus is a redoubtable foe of the putrefactive microbes. Moreover, a lactic acid ferment which is found in Bulgaria seems to be more active than those of other countries. Metchnikoff discovered this ferment in a preparation of milk consumed in large quantities by the Bulgarians, who are reputed for their longevity. It is suggested that this ferment be used in medicine. It precipitates casein, which it also partially digests, which fact explains the ease with which "Bulgarian milk" is digested. The lactic acid ferment found in this preparation of milk continues to live in the intestine, where it destroys unfriendly bacteria. This milk, containing the pure bacillus, has the consistency of white cheese. It has an agreeable, acidulous taste and contains neither alcohol nor carbonic acid. It is well tolerated by dyspeptics. It is indicated in fermentative dyspepsia. Inasmuch as Pawlow has shown that the organic acids are the best excitants of the intestinal digestive juices one may regard this form of milk as an excellent intestinal tonic. It may replace ordinary milk in the fetid diarrheas of typhoid fever and enteritis. The peculiar ferment in the Bulgarian lactic acid bacillus, splits up sugar into products which are harmless to the cells. It has been tried in the treatment of diabetes with the result that the amount of glucose in the urine was diminished by two-thirds. Possibly this ferment may replace the diastases of yeast-cells and of raisins used in the treatment of microbic dermatoses. Bulgarian milk may be a useful adjuvant in the forced alimentation of cases of cancer and tuberculosis, used either alone, or mixed with yolk of egg, beef powder, etc.

Functions of the Thyroid and Parathyroid.—It would seem as if preconceived notions as to the importance of the thyroid glands in the animal economy are receiving their deathblow. S. VINCENT and W. A. JOLLY (*Jour. of Physiol.*, December 30, 1904) believes that it cannot be truly said that either the thyroid or parathyroid is essential to life, for it is frequently possible to remove either or both without causing death. The functions of these glands differ widely in animals. Rats and guinea-pigs do not seem to suffer at all from their deprivation, monkeys manifest only transitory nervous symptoms, while cats and dogs frequently suffer and die. In foxes symptoms come on with remarkable rapidity and death occurs early. These differences are to be attributed to physiological and not to anatomical peculiarities. In no animals have the authors been able to produce symptoms resembling those of myxedema. In young animals, although extirpation of these glands causes a temporary cessation of growth, this is not necessarily accompanied by symptoms of a cretinoid nature. Myxedema and cretinism must then be due to causes more complex than simple thyroid insufficiency. When the thyroid is removed the parathyroid appears capable of functionally replacing it to a certain extent and its histological structure changes accordingly.

PRESCRIPTION HINTS.

Nephrolithiasis.—The following rules are given in *Bull. General de Therap.*, 30 Janv., 1905, for stone in the kidney.

If the colics are of recent date, give during one week

℞ Sidonal 0.20

half an hour before the two principal meals, twice a day.

The following week, replace the sidonal by

℞ Urotropin 0.50

twice a day, afternoon and evening. Rest for one week, then repeat as above.

Herpes Tonsurans.—LASSAR (*Med. Klinik*, No. 3, 1905) recommends the following pastes for herpes tonsurans:

℞ Acid. Salicylic		2.0
Sulphur sublimat.		20.0
Zinc oxid.	aa.	14.0
Amyl.		
Vaselin flav.		50.0
℞ Hydragyr. sulph. rubr.		1.0
Sulph. sublimat.		24.0
Vasel. flav.	ad.	100.0
Ol. bergamott.	gtt.	30.0
℞ Beta-naphthol.		10.0
Sulph. sublimat.		40.0
Vaselin flav.	aa.	25.0
Sapon. virid.		

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SATURDAY, MARCH 4, 1905.

THE BENEFICENT ROLE OF THE LACTIC-ACID BACILLUS.

THAT branch of bacteriology which deals with the mutual antagonistic relations of pathogenic germs is still in its infancy. The facts already discovered suggest important developments in the future. To what extent clinicians will be able to utilize these antagonisms in the treatment of disease it is difficult to foretell.

A good beginning, however, has been made. It is hardly necessary to recall Coley's work with the toxins of the *Bacillus erysipelatos* and *Bacillus prodigiosus* in the treatment of inoperable sarcoma. Prof. Elie Metchnikoff has contributed to this subject a number of important data which have not yet received practical application. Thus, he has shown that the *Bacillus mesentericus*, the *Bacillus subtilis*, and the bacillus of symptomatic anthrax weaken the toxins of the tetanus bacillus. The bacillus of Eberth destroys the toxins of diphtheria. W. D. Frost has recently shown that mixed cultures of bacteria obtained from the soil and water have a marked antagonism for the typhoid bacillus.

A number of facts which are the offspring not of laboratory investigation but of clinical experience, indicate that the lactic-acid bacillus, which for a long time has been considered a disreputable one, is really one of man's greatest benefactors. As an enemy of the hordes of putrefactive bacteria that thrive in the intestinal canal, this bacillus serves to prevent intestinal autointoxication. It is again to Metchnikoff that one owes important observations in this domain. A firm defender of the theory of intestinal autoinfection, this investigator, whose speculations may be characterized as almost romantic, believes that the atrophic changes incident to old age are to be attributed to toxins absorbed from the food-canal. Metchnikoff observed that natives of Bulgaria, who are reputed for their longevity, consume large quantities of a form of sour milk. He also found that this contains a lactic-acid ferment which is more vigorous in combating the putrefactive bacteria than the ferments contained in the lactic-acid bacilli native to other countries. This ferment may be used in its pure state without the bacilli.

L. Lematte perceives in the lactic-acid ferment a wide sphere of usefulness in medicine. He has found that "Bulgarian milk," which has the consistency of cream-cheese, and has an agreeable acid taste, is well tolerated by dyspeptics. It is indicated in the fetid diarrheas of typhoid fever and enteritis, and has given good results in the treatment of diabetes. Success in the last case would seem to be due to the fact that the lactic-acid ferment splits up sugar in the organism, with the result that the amount of glucose, as Lematte has found, may be diminished in the urine by two-thirds.

It is not only in "Bulgarian milk" that the lactic-acid bacillus has found favor in the eyes of clinicians. Buttermilk, which also contains this bacillus in large numbers, has been used for a long time as an agreeable and easily digested food in various morbid conditions complicated with digestive disorders. As an example, nephritis may be mentioned. But it is only within recent years that buttermilk has found definite applications in therapeutics. By some European physicians buttermilk is considered to be an ideal substitute for woman's milk in infant feeding. Moreover, it has been thought that buttermilk has a marked curative as well as nutritive value in the summer disorders of infants. The experiences of Dr. Flouquet and E. Decherf, in the north of France, merit attention. During a severe epidemic of gastro-enteritis the buttermilk treatment was employed, with good results, while in parallel cases, treated by other means, no improvement was observed. In acute and

chronic cases of gastro-enteritis, in cholera infantum, in rickets, in intestinal fermentations, these observers used buttermilk to good advantage. It is administered boiled, one tablespoonful of farina having been added to a quart of buttermilk, the mixture then being boiled for a few minutes, at the end of which time 2½ ounces of sugar are added. It is fed in the same quantities and at the same intervals as ordinary milk-preparations. The beneficial effects of the buttermilk are attributed to the large number of lactic-acid bacilli present, to the small content of fat, and to the fine division of the casein produced by churning.

ALBUMINOUS SYNTHESIS IN THE ANIMAL BODY.

IN a previous editorial we have pointed out that peptic as well as tryptic digestion, when sufficiently long continued, will, in vitro at least, lead to the cleavage of the albuminous molecule to products which no longer give the biuret reaction and hence do not bear an albuminous character.

This, however, does not prove at once that in the gastro-intestinal tract also proteolysis is carried to this extent, and it is quite conceivable that absorption occurs already when the albumose stage has been reached. As a matter of fact there is evidence to show that this is possible. When Neumeister then demonstrated that "peptones" will disappear from solution in the presence of particles of intestinal mucous membrane the inference suggested itself that a reconstruction of the albuminous molecule takes place in the epithelial cells lining the intestinal tract. This view appeared the more justifiable since all attempts to find either albumoses or peptones in the portal circulation had failed.

Cohnheim's discovery of erepsin, however, has thrown a new light upon these older experiments, and now where we know that the ferment in question, although it may occur free in the intestinal juice, is essentially a tissue ferment and will cause the hydrolytic decomposition of albumoses to a point where the biuret reaction can no longer be obtained, it appears rather doubtful that a restitution ad integrum occurs to any marked extent within the cells. On the contrary, it would seem more plausible to assume that albuminous synthesis occurs in the various tissues of the body at large from the fundamental radicles, or at least from products which are simpler in composition than the albumoses.

To test this hypothesis numerous experiments have been undertaken, and while an ultimate conclusion has not yet been reached regarding the nature of the processes involved, there is evidence to show that the animal body is capable of effecting the synthesis of the albuminous molecule from such relatively simple products as result on prolonged tryptic digestion. Some of these experiments have furnished results of great interest. O. Loewi thus found that a dog while being fed on the end-products of pancreatic autolysis, in addition to fat and carbohydrates, stored 0.72 grms. of nitrogen on an average per day during a period of eleven days. This goes to show that the sum of the end-products of pancreatic autolysis, which no longer gives the biuret reaction, *can* take the place of the food albumins. Corresponding results with meat alone show very clearly, however, that quantitatively the end-products do not cover the requirements of the nitrogenous metabolism as readily as the original albumins. Loewi noted a marked tendency, moreover, to diarrhea and vomiting in his animals. Following Loewi's experiments, Henderson and Deane published an account of an analogous investigation, in which the cleavage of meat was effected by sulphuric acid. Here also it was possible, after a while, to maintain the nitrogenous equilibrium of the animal. The writers do not draw the inference, however, that albuminous synthesis occurred; they merely suppose that the material in question acted as a proteid sparer. As in Loewi's case there was a marked tendency to diarrhea and vomiting.

Lesser then took up a similar line of investigations with the end-products of tryptic action on fibrin, but did not succeed in maintaining his animals in nitrogenous equilibrium. With the products of peptic action upon Witte peptone the results were likewise uncertain. He concludes that if it is possible at all to keep animals in nitrogenous equilibrium by feeding with such products it is necessary to give much larger amounts of nitrogen in this form than would correspond to the intact albumins.

The next series of experiments in this direction is reported by Abderhalden and Rona. They worked with mice and gauged the effect of their feeding experiments by the body-weight of the animals. The results are very interesting. They found that animals fed with the products of acid hydrolysis (of casein) lived but little longer than starving control animals, while others which were kept on the products of pancreatic digestion lived as long as the controls

which had been fed on native casein. Very curiously intermediate results between the two were obtained with the products of primary peptic-hydrochloric acid and subsequent pancreatic cleavage.

The latest experiments of this character finally came from the physiological laboratory of the veterinary institute of Copenhagen and are reported by Henriques and Hansen. The experiments were conducted on white rats and are quite laborious. These writers also have found that the products of acid cleavage (in the case of casein) are not capable of protecting the tissue nitrogen, even when administered in large amounts. But they find that the end-products of the action of trypsin and erepsin, on the other hand, will not only maintain nitrogenous equilibrium, but can even bring this to a higher level. In one experiment in which the weight of the animal, on the fourth day, had been 68 grms., this increased to 98 grms. by the twenty-fourth day.

This brief survey will show what has already been accomplished in connection with the problem under consideration and in what direction future investigations will have to be carried. It is significant that pancreatic digestion and cleavage by means of erepsin apparently lead to products which the organism can utilize in albuminous synthesis, while acid cleavage manifestly is too extensive. It will be very interesting to observe in future studies to what extent polypeptids are of moment in order that a reconstruction of the albuminous molecule may occur.

MUCH ADO ABOUT NOTHING.

THE American favorite funny story is about the Englishman who cannot see a joke. The tomato story with "They eat what they can and tin the rest" has circled the globe, and "What *was* the matter with the custard pie" is equally famous. But now it is the Englishman's turn to laugh. We fancy that for some years to come no American on English soil can hear the word "chloroform" without feeling silly.

Americans may not know that with all their ability to *see* a joke, they are world famous for not being able to *take* a joke; and a more jovial joker, a more epigrammatic and witty member of society than Dr. Osler never made after-dinner speeches.

The furor that has been raised over his retiring speech at Johns Hopkins reminds one of the "Hobson's kiss" episode, and the "Dewey's house" business. It is on a par with the marvelous facility of the press to kindle a mighty flame from a very little matter, and it illustrates most delightfully our national tendency to take ourselves very seriously. We can ha ha at our neighbor's expense, but not at ourselves.

Now, when Dr. Osler in his dry and genial manner wished modestly to indicate to his fellow-workers that he felt he had lived his best days with them, he facetiously quoted from Anthony Trollope's novel, the Fixed Idea, the scheme on which the plot hinges, of a college into which at sixty, men should retire for a year of contemplation before a peaceful departure by chloroform. He adds, pointing at *himself*, the barb which all the solemn readers of the daily news claim was hurled at their self-respecting selves, these words "That incalculable benefits might follow such a scheme is apparent to any one who, like myself, is nearing the limit and who, like myself, had made a careful study of the calamities which may befall men during the seventh and eighth decade."

He then adds, after recounting some of the well-known follies of the aged: "The teacher's life should have three periods. Study until twenty-five, investigation until forty, profession until sixty, at which time *he should be retired on a double allowance.*" The press missed this point.

To round up his playful allusion he says, with affected hesitation, "Whether Anthony Trollope's suggestion of a college and chloroform should be carried out I have become a little dubious, as my own time is getting too short."

Dr. Osler is taking with him to Oxford a curious epistolary collection, for he has been bombarded with letters, telegrams and articles from the senile and the presenile all over the country, stating in good set terms why they should not be chloroformed.

If Dr. Osler was to stay with us much longer we fear that he would have to take to heart the advice of John G. Saxe, who says:

> "Learn to wear a sober phiz,
> Be stupid, if you can;
> It's such a very serious thing
> To be a funny man."

Honorary Degrees at Manchester.—On the occasion of the opening of the new public health laboratory of the Victoria University, Manchester, honorary doctorates of science were conferred upon Professor Calmette, Lille University; Professor Perroncito, Turin University; Professor Salomonsen, Copenhagen University, and Captain R. F. Scott, of London.

ECHOES AND NEWS.

NEW YORK.

Society of Medical Jurisprudence.—Professor Wilhelm Waldeyer was made an honorary member of this Society at its last regular meeting, held February 20, 1905.

Clinic on Cancer.—At the completion of Dr. L. Duncan Bulkley's special course of lectures on Diseases of the Skin, held at the New York Skin and Cancer Hospital, Nineteenth Street and Second Avenue, New York, Dr. William Seaman Bainbridge will give a clinical lecture on cancer, March 29, at 4.15 o'clock. A number of interesting cases will be shown.

For the Treatment of Consumption.—Announcement was made last week that the Health Department's new building in Brooklyn, made necessary by the unsanitary condition of the present quarters in Clinton Street, is to have attached to it a tuberculosis sanitarium of the most modern description. The new building is to be erected in Flatbush Avenue, near Fulton Street, and is to cost $200,000. The scheme of a tuberculosis institution has been under advisement for a long time. It is proposed to build a one-story structure, tiled throughout, without a particle of wood or other material to harbor germs. The tuberculosis ward will be attached to the main building, which will be used for the business offices of the department and fitted for scientific experiments. It is expected that the new structure will be completed within eighteen months.

New Eye and Ear Hospital.—A meeting of the board of directors of the Manhattan Eye, Ear and Throat Hospital, Madison Avenue and Forty-first Street, was held last week to consider the plans submitted by the building committee for the contemplated hospital on Sixty-first Street, running through to Sixty-second Street, between Second and Third avenues. It was found that a suitable hospital would cost nearly $200,000 more than had been appropriated for the building. A letter was read from Frank Tilford, who was recently elected a member of the board of directors, suggesting that the hospital be built upon the original plans, even if a debt must be incurred. He believed there were many who would give large amounts if the need for it were properly presented to them. He backed up this proposition by a gift of $25,000 for the construction of an ear clinic. The board immediately passed a resolution to incur the debt and begin at once with the construction.

A Dettweiler Foundation.—To honor the memory and the works of the late Geheimrath Dr. Peter Dettweiler, the founder of the Falkenstein Sanatorium and the first people's sanatorium at Ruppertshain, it has been decided, by his friends, admirers, patients and pupils, to establish an institution bearing his name which shall be a home for physicians who have served in sanatoria for consumptives and who have become invalidated by disease, accident or old age. For the collection of funds and the final arrangements a committee has been formed under the patronage of H.R.H. the Princess Friedrich Carl of Hesse. This committee is composed of many of the foremost men and women of the German empire. Of the medical men who have signed the appeal for funds we read such names as Besold, the successor to Dettweiler, Professors Kurschmann, of Leipzig, Flügge, of Breslau, B. Fränkel, von Leyden and Pannwitz, of Berlin, General Dr. von Leuthald, physician to the Emperor, Schmidt, of Frankfort, etc. Contributions are to be addressed to Grunelius & Co., Bankers, 16 Gr. Gallus Strasse, Frankfort-on-the-Main, Germany.

Lodging Houses and Tuberculosis.—Mr. Paul Kennaday, secretary of the Committee on the Prevention of Tuberculosis, has made a personal inspection of 101 lodging houses in New York, and publishes the results in this week's *Charities*. No direct evidence of tuberculosis are found, but bad sanitation is the rule. Mr. Kennaday was assured by several lodging-house keepers that all blankets were washed "at least twice a year"! New York's lodging houses—the majority located along the bowery—shelter nearly 20,000 people every night. The Health Department has apparently gone upon the theory that it is impossible to make them keep clean. The old argument against tenement-house reform was that the tenement dweller got as good as he deserved—that he would rapidly defile the most immaculate buildings. But that notion, as we see now, was fallacious. And our floating population is at least entitled to fresh air, an occasional bathtub, and frequent changes of bed linen. If our officials give more careful attention to their duties, and if the few new laws advocated by Mr. Kennaday are enacted, the changes brought about in the tenements may be in some degree duplicated on the Bowery.

Pneumonia in 1904.—State Commissioner of Health, in his annual report, states that, estimated by the death rate from all causes, the sanitary condition of the State for 1904 was unsatisfactory. There were 141,564 deaths reported, which is largely in excess of previous records. The annual average mortality for the past twenty years, including 1904, is 116,600. Of epidemic diseases, cerebrospinal meningitis and measles alone have shown any material increase. This was due to an outbreak of the former disease in the City of New York, beginning in March and continuing several months. Measles has increased in the southern and eastern parts of the State, New York City having had nearly twice as many deaths from this cause as 1903. The chief cause for increase in the mortality of 1904 has been pneumonia. This alone caused 13,500 deaths, against 10,250 in the preceding year. These figures were nearly reached in the years of largest prevalence of the grip, 1891-3, which in the first five months of the year amounted to one-eighth of the total. There were over 14,000 deaths from consumption, the mortality from which is also excessive in grip epidemics, and last year's exceeds any previous year's record.

Subway Signs Not Dangerous.—The subway signs are deadly to bacteria, declares Dr. William H. Park, head of the Health Department division of bacteriology. Dr. Park has embodied his views in an affidavit which the Interborough Company's lawyers will file to-day in rebuttal to the sworn statement of Dr. George A. Soper that subway dust is dangerous to health. This affidavit is one of the last papers to be filed in the plea of the Interborough Company that the City of New York be forbidden to tear out the mural decorations put in by Ward, Gow & Co. Dr. Park, after setting forth his qualifications and stating that he has read Dr. Soper's statement, declares that there is not a sufficient quantity of dust in the subway to be dangerous of itself, and that there are fewer bacteria in the subway dust than in the common or garden variety to be found in the streets above. As to the dust which gathers on the advertising signs, the doctor declares that it dries so quickly there that nearly all bacteria are destroyed. Dr. Park adds: "If the metal frames for the advertising signs in the subway should be moistened they would operate as a positive germicide and destroy practically all the non-spore-bearing bacteria brought in contact with them." In conclusion Dr. Park says: "My conclusion from the experiments above men-

tioned, and from my knowledge of the conditions in the subway and my knowledge of the subject of bacteriology, is that as a practical matter the presence of the signs attached to the walls in the subway as a menace to the health of the public is so infinitesimal that they may be disregarded entirely for all practical purposes."

A Home for Convalescents.—The fact that three more tents for convalescents are to be erected this week in the Bellevue Hospital yard emphasizes the city's need of a home for convalescents, the building of which is being advocated by the Commissioner of Charities, Mr. Tully, and Acting-Superintendent Rickard of Bellevue Hospital. It is their belief that no relief from the present overcrowding can be brought about until such a home is constructed. "The tents," said Acting-Superintendent Rickard, "are only a makeshift at best. What the city most urgently needs in its hospital work is a capacious home for convalescents. There they could remain until they have received the full benefits of the hospital treatment. As it now is, benefits from treatment are in great measure nullified. It will continue to be so until a home where 5,000 or 6,000 patients may be nursed through the dangerous period of convalescence is provided." Mr. Tully said: "Much of the present trouble could be obviated if we could have a home for the exclusive treatment of tuberculous patients and a home for convalescents. I have asked the Board of Estimate for an appropriation of $500,000 to build the former on our farm of 140 acres on Staten Island, and for another to erect a convalescents' home on our twelve-acre plot on the Coney Island Parkway. If we had these, the relief, both at Bellevue and its allied hospitals, and on Blackwell's Island, would prevent the present crowded conditions at all these places."

Work of the Babies' Hospital.—The sixteenth annual report of the Babies' Hospital, at Fifty-fifth Street and Lexington avenue, has just been issued. There has been a notable decrease in the death rate this year, owing, it is said, to the improved hygienic conditions under which patients are now treated. This in spite of the fact that more than one-third of the total deaths occurred within forty-eight hours after admission, and the majority of these within the first twenty-four hours. The total number of patients admitted during the past twelve months was 929, against 600 for the preceding year. The death rate was 27.7 against 30 per cent. the previous year. The work of the out-patient department shows an increase in the number of patients treated; 5,761 cases were handled last year, and 5,864 during the last twelve months. The report of the treasurer shows receipts of $36,639.99 and expenditures of $30,234.17. The general cost of operating the hospital has been $30,227.17, exceeding that of last year by $118.58. This small excess is remarkable in view of the fact that all the departments have been open the entire year for the first time in the history of the institution. The summer hospital at Oceanic, N. J., was well filled during the three months of its occupancy, the committee securing funds to the amount of $2,000—nearly enough to defray the expenses of the entire season. The income of the Babies' Hospital is in a large measure dependent upon the receipts from its contributors. Checks should be sent to Mrs. John B. Calvert, No. 15 East Fifty-seventh Street.

West Side Doctors Fleeced.—Many physicians on the upper west side complained to the police last week of a handsomely dressed young woman who had succeeded in swindling the doctors out of various sums of money by laying down worthless checks. In each instance the swindler obtained money from members of the doctor's household in the absence of the physician. Just how much money the swindler obtained in the Central Park district could not be learned, but the police came to the conclusion that the woman must have obtained at least a thousand dollars in one day. The woman is described as about thirty years old, of medium build, comely, and of good education. In the majority of cases she described herself as a trained nurse, and said that she was employed by the physician whose house she visited. Her plan was to call in the absence of the physician, and declare that she was there to pay a bill owed by one of the doctor's patients. She offered to pay the bill by check drawn on the Riverside Bank, at Fifty-seventh street and Eighth avenue. At some of the offices she visited she declared that the patient whose bill she was paying owed $5. Then she presented a check for $25, and walked out with $20 of the doctor's funds, handed to her by either the physician's wife or the housekeeper. At a few of the places she said that the sum due the doctor was $20 and presented a check for $50. At the home of one doctor she said she had come to pay the bill of a patient who owed $60, and presented a check for $100, getting $40 change from the housekeeper. On one block alone in West Fifty-eighth Street she succeeded in swindling five physicians out of amounts varying from $5 to $20.

Columbia's Medical Needs.—Dr. Nicholas Murray Butler, president of Columbia University, in acknowledging the recent gift of Mr. and Mrs. William D. Sloane for the endowment of the Sloane Maternity Hospital, points out that "the existence, within the university, of this excellently appointed and well-managed hospital gives a unique distinction to our instruction in obstetrics, and indicates clearly how great would be the advantage to the medical school if the university were in possession of a general hospital of its own." Both the need and the advantage of a university hospital were still more emphatically presented by Dr. John H. Musser in his presidential address at the fifty-fifth annual session of the American Medical Association. He insists that "the final years should be clinical years, and the last should be in a hospital. . . . What has been said regarding the preliminary college training applies equally forcefully to the hospital training. He (the student) is thrice armed who enters the arena thus equipped." Dr. Musser's argument is that public safety demands that each medical school shall have its teaching hospital, and that "every hospital should be a school" in the interests of the patients as well as medical education and broad considerations of humanity. The importance of hospital instruction has always been recognized in the College of Physicians and Surgeons, and in the early days the New York Hospital met the requirements both of the public and of the medical students, who then gathered in New York for instruction. Now too many hospitals in the city are inadequate to the needs of a university course in medicine. Modern medicine demands, both for the instructor and the student, a study of disease from its inception to its close, and this in the full light of all obtainable knowledge.

To this end it is believed there should be established a thoroughly equipped hospital, controlled by the university. European schools of medicine are for the most part founded in connection with the great Government hospitals, and it is for that reason alone that every year such large numbers of students, graduated from the foremost medical schools in the United States, have gone abroad. The opportunities for bedside instruction possessed by the teachers in the medical school at Columbia are considerable, but are inadequate for placing medical education on a university basis.

New York's Dispensary System.—From advance sheets from Annual Report of the Committee on Dispensaries of the State Board of Charities we obtain the following: On October 1, 1903, there were 123 licensed dispensaries in the State. Four dispensaries have ceased work since that date, and no new licenses have been issued during the year. Since October 1, 1904, licenses have been issued to the Italian Benevolent Society to conduct a dispensary at 169 West Houston street, Borough of Manhattan, New York City (license granted October 12, 1904), and to the Bedford Guild, 962 Bergen street, Borough of Brooklyn, New York City (license granted December 21, 1904). Of the 123 dispensaries which were open during a whole or part of the year ending September 30, 1904, 20 were in receipt of public money directly ($11,032.40 all told), 61 were connected with other charities in receipt of public appropriations, and 42 were supported wholly by private contributions. The total property real and personal of the 81 dispensaries in receipt of public funds and reporting annually to this Board was $1,175,436 October 1, 1904; their total indebtedness on the same date $68,996; their total receipts for the year ending September 30, 1904, $125,113, and their total expenditures, $105,642. The work of these dispensaries is of more than casual interest and importance in view of the fact that such work is extensively carried on in this State than in any other part of the country, that here it is more highly organized and developed, and that here, as in no other State, dispensaries are licensed and regulated by the State Board of Charities. The system has now been in operation for a little more than five years, and certain features and results of its workings are set forth herewith. During the year the Inspector of Dispensaries has made a special investigation as to the extent of compliance with the rules of the Board, adopted pursuant to chapter 368 of the laws of 1899, affecting the management of all licensed dispensaries. Four out of the 123 licensed dispensaries in operation at the beginning of the year have been closed, and the accompanying table shows the extent of compliance with the various provisions of the rules on the part of the 119 dispensaries remaining.

	Rules.	Yes.	No.	In Part.	Not Applicable.	
I.	Public Notice Posted	117	2			
II.	1 Registrar	118	—	1		
	2 Deputy (not required)	44	75	—		
	3 Makes and Preserves records	114	3	2		
	4 Receives Applicants	117	1	1		
	5 Sees that Rules are Enforced	18	2	99		
III.	1 Examines all Applicants	116	3			
	superficially 34					
	fairly well 31					
	thoroughly 54					
	are any refused admission	87	32			
	a. Emergency cases admitted	119				
	b. Poor applicants admitted	119				
	c. Doubtful cases admitted upon signing representation card	90	28		1	
	d. Subsequent investigation made	41	76		2	
	e. Results of investigation filed	32	85		2	
	f. Non-signers refused admission	100	18		1	
	2 Representation cards in proper form	113	6			
	3 *a.* Pass cards issued	119				
	b. Penalty printed thereon	110	4	5		
IV.	1 Matron	117	2			
	2 Cleanliness and Order Preserved	115	4			
	3 Present at gynæcological examinations, etc.	89	3		27*	
V.	1 Contagious diseases excluded	119				
	2 Registrar prevents exposure	119				
	3 Registrar reports to health authorities	118	1			
VI.	1 Clinical or other instruction given	28	91			Instruction permitted by Rules.
	2 Treatment conditional thereon	—	28		91	
	3 Consent of patient obtained	27	1		91	
	3 Consent of patient obtained	27	1		91	
VII.	1 Apothecary (not required)	107	12			
	2 Licensed or medical graduate	104	3		12†	
	3 Appointed under Civil Service Rules	8	—		111‡	
VIII.	1 Board of Health ordinances observed	119				
	2 Minute made before September 30	45	74			
IX.	1 Seats for all applicants provided	107	12			
	2 Sexes separated in					
	a. waiting rooms	85	32	2		
	b. treatment rooms	102	17			
	3 Suitable equipment and supplies	109	8	2		

* Such examination not held in these dispensaries.
† No prescriptions compounded in these dispensaries.
‡ Applies only to 8 dispensaries connected with municipal hospital in New York City.

It will be seen from the above that with 24 of the 31 requirements of the dispensary rules compliance is practically complete, that in four of these provisions compliance is fairly good, and that in these matters those requiring an investigation to be made as to the ability of doubtful applicants to pay for their treatment, the filing of resuls of these investigations, and of making a minute showing observance of the ordinances and orders of the Board of Health, compliance is somewhat lax.

Some of the showings of this table are very satisfactory. One hundred and fourteen out of 119 dispensaries examined are keeping reasonably complete records of their work. In 54 cases the examination by the Registrar of applicants for treatment is reported as being done thoroughly, and in 31 additional cases as being done fairly well. In only 34 cases is the work reported as being done superficially. As this is perhaps the crucial point in the proper administration of dispensaries, viewed from the social standpoint, this showing is encouraging though by no means all that could be desired. In 87 dispensaries obviously well-to-do applicants are refused admission by the Registrar after questioning, but without further formality, while in 100 dispensaries, where the Registrar is still in doubt as to the applicant's ability to pay, persons unwilling to sign representation cards are refused treatment. In 90 out of 119 dispensaries doubtful cases are admitted only upon signing representation cards. This would seem to indicate that the doors of the dispensaries in the State are reasonably well guarded in the large majority of cases, that they are partially protected in most of the remaining instances, and that they are not wholly unguarded except in a very small number of cases. In all but two of the dispensaries a matron is employed, cleanliness and order are maintained in all but four, and in only three cases the matron is not present at gynæcological examinations where such are held. In only three dispensaries is the apothecary unlicensed or not a medical graduate, and in every dispensary compliance with the local ordinances of the Board of Health is reported as complete. All but 10 of the dispensaries are reported as having suitable equipment and supplies, and in practically all of them seats are provided for every applicant, and in the great majority of them the sexes are separated both in the waiting and in the treatment rooms. It is interesting to note that the facilities of but 28 dispensaries are used for the purpose of giving medical instruction, and in none of these is the treatment

given the patient conditional upon his willingness to submit to an examination before a class. Another item of interest is the fact that but 12 dispensaries are without an apothecary as a regular officer or employe of the dispensary, and that in only three cases such apothecary is not a licensed pharmacist or a medical graduate.

PHILADELPHIA.

Bequest.—The will of Ellen K. Mitchell bequeaths $5,000 to maintain a free bed in the Pennsylvania Hospital.

Donation Day at St. Joseph's Hospital.—The Sisters of Charity who made an appeal for liberal assistance devoted February 22 to receiving donations.

To Open a Private Hospital in the Philippines.—Miss Hicks, formerly chief nurse of the Bryn Mawr Hospital, from which institution she has recently resigned, will in the latter part of March leave for the Philippines, where she will take charge of the first private hospital in those islands.

Anthrax Victim.—A young Jersey farmer, unaware of the dangerous task he was asked to do, removed the hide of a cow which had died of anthrax. The young man soon became very ill; he was taken to the Jefferson Hospital where spreads and cultures were made which upon examination revealed the bacillus of anthrax. The patient was then sent to the Municipal Hospital, where he was isolated with an attendant.

New Hospitals.—The Mount Sinai Hospital, at Fifth and Wilder Streets, will soon be ready to receive patients. This institution will be supported by Russian Jews, who will make monthly contributions of from 10 to 50 cents. The membership at the present is 2,000, but it is soon expected to be 8,000—the number required to maintain the institution according to the above contributions. The building is four stories high. The first floor will be used for the dispensary, accident and drug-room. The second contains four wards, with forty beds; the third floor contains fourteen rooms, five of which are set aside for operating. Upon the fourth floor are the kitchen, dining-room and nurses' rooms. The Union Mission Hospital has also been opened. This institution contains fifty beds, with provisions for twenty-five more. Dr. Charles B. Warder is medical director and Dr. H. C. Weaver is chief surgeon. The medical staff will consist of eleven visiting physicians and a resident.

Bills Introduced into the Legislature.—The first of these provides that after January 1, 1906, the Governor shall appoint one-half of the number of members on the Board of Directors or Trustees of all institutions and hospitals receiving State aid for maintenance or other purposes. The bill does not, however, include the hospitals or asylums for the care and treatment of the indigent insane, which has been erected by any city or county, or any institution or hospital in which all or a portion of the members of the Board of Directors or Trustees are now appointed by the Governor. The other bill requires that in order to practice medicine in Pennsylvania the applicant for licence must have pursued a four-years' course, instead of three as now required by law; but if he has graduated from a reputable literary college, he may be admitted to the second year in the medical college, if he has pursued a four-years' course at that school, two of which having been devoted to science and biology.

Society of Medical Jurisprudence of Philadelphia.—This meeting was held February 26, 1905, with Dr. Coplin in the chair. Owing to the illness of Dr. Leffman his paper, entitled "A Criticism of the Reid and Crusade Methods of the Enforcement of the Law," was read by Dr. Cattell. Dr. Leffman pointed out that the newspapers try more cases of violation of the law than are actually tried in court. He also noted that in many instances the defence is brought up for prosecution for selling adulterated food or drinks which have never been tested, or which, at any rate, come to trial without a chemical report. The taking up of numerous samples of articles of food spasmodically and subjecting them to tests, he said, is not the intention of the food laws. Dr. Leffman maintained that preliminary examinations of foods and beverages should be made, the dealers be notified of what is required, and then that requirement constantly and steadily forced upon them. The methods of the Law and Order Society is a violation of the law of the government, for it merely scatters vice and crime. Dr. Hirsch moved that the society join the other societies of the city in establishing a pamphlet to be issued every Saturday announcing the official programme of all the meetings the following week. The matter was placed in the hands of a committee to act upon the question.

Section on Ophthalmology of the College of Physicians.—This meeting was held February 21, 1905, at which Dr. H. F. Hansel read a paper entitled: "Some Further Experiences in the Treatment of Ocular Inflammations by Diaphoresis." From his recent experiences he is inclined to avoid the internal administration of pilocarpine to induce sweating and to produce the diaphoresis by means of hot baths. If perspiration is delayed after the bath is begun he gives hot drinks, or, if that fails, he administers a dose of strychnine; and then, if these fail, he gives the pilocarpine as a last resort. He reported three cases in whom good results were obtained by this method of treatment. Very good effects are produced, he said, if the inflammatory conditions are not due to syphilis. The absorption of the exudate, he finds, is hastened by the administration of mercury and potassium iodide.

Dr. C. F. Clark, of Columbus, O., by invitation read a paper on "Astigmatism following the Operation for the Extraction of Cataract." He spoke of the prolapse of the iris and the occasional incarceration of this structure which prevented the healing and favored the production of astigmatism as complication of operation for cataract. When he employed the conjunctival flap and the Snellen wet dressing he had but one case of prolapse of the iris of 30 cases operated. In these cases but 2.92 diopters of astigmatism occurred when the examination was made from nine days to six weeks after the operation. Dr. W. Zentmayer read a paper on "A Case of Paralysis of the Upward Movement of Both Eyes." He gave the history of the case in detail but did not quote literature. Dr. Spiller who saw the case with Zentmayer expressed the opinion that the lesion was in the nucleus of the motor oculi nerves. Dr. de Schweinitz read a paper on "Traumatic Aniridia." The patient of whom he speaks was struck in the eye while wearing spectacles; the glass broke but no foreign body could be located by means of the X-ray. The patient would have attacks of pain in the eye affected, which radiated toward the mental foramen. He was placed upon the salicylates, upon which treatment he improved. The iris could not be found. Dr. de Schweinitz also reported four cases of sarcoma of the choroid and one case of glioma of the retina. Dr. E. A. Schum-

way exhibited a new ophthalmic outfit for bedside examination.

Course of Instruction in Public Health.—The authorities of the University of Pennsylvania realize the efforts which are being made in communities throughout the country to obtain officials who have had some special training in matters pertaining to public health. Each year the demands for men of this type (either as chiefs of departments or in some subordinate position) is increased, and at the present time there is a lack of men qualified to fill such positions. To meet the needs of such instruction, the University will introduce into its curriculum, beginning October 1, 1905, a course in public health, which will include instruction under the following headings:

Sanitary Engineering.—Including the subject of water supplies, sewerage systems, street cleaning, disposal of waste, etc.

Sanitary Legislation.—A study of the movement for sanitary reform, and of the laws enacted relating to public health, and the methods of enforcement employed in Great Britain and the United States.

Inspection of Meat, Milk and Other Animal Products.—The methods of preparation and preservation of the same, the conduct of dairies, creameries, etc., and demonstrations of the diseases of animals transmissible to man.

The Sanitary Engineering of Buildings.—Including demonstrations of systems of heating, ventilation, plumbing and drainage, the study of plans, etc.

Social and Vital Statistics in the United States.—An examination of statistical methods and their results, with special reference to vital statistics and to city populations.

Practical Methods Used in Sanitary Work.—Including water, air and milk analyses, studies in ventilation and heating, investigation of the soil, methods of disinfection, sterilization, etc. (This is purely laboratory instruction.)

General Hygiene.—As applied to the community, including lectures upon the causation of disease—exciting and predisposing, methods of prevention—including isolation, quarantine, natural and acquired immunity, protective inoculation, vaccination, and the antitoxic state, methods of house disinfection and the means employed, suggestions for the organization of sanitary work, the influence of water supplies and sewage disposal on the public health, etc.

Personal Hygiene.—Including the physiology of exercise, the adaptation of exercise to the various physical requirements; the use of exercise for the prevention and correction of deformities, the methods of examination and record keeping, the routine physical examination of growing children and the relation of air, food, bathing, etc., to health and development; the hygiene of the school room.

Philadelphia Pathological Society.—At the meeting of this society, which was held February 23, 1905, Dr. R. C. Rosenberger read a paper entitled "Homogenized Cultures of Tubercle Bacilli." He first described his technic. The bacteria, which were originally made from homogenized bouillon cultures, were inoculated from glycerin potato and glycerin agar upon a five per cent. glycerin bouillon. The growth was transferred from the agar or potato by a platinum loop to the side of the tube or flask and then the bouillon, by tipping the tube or flask, was brought in contact with the bacteria—in that way they were washed off and disseminated. When the tubercle bacilli from these cultures were examined they were found pleomorphous, exhibiting short, nearly coccoid, and long forms, which were filamentous. There were also beaded, club-shaped and branched organisms. Although a few were isolated, the tendency was toward grouping of from six to fifteen elements. In no cultures, even from the third or fourth day to the fourth or sixth week, did he observe motility; Brownian movement was common. The resistance to 25 per cent. sulphuric acid was still maintained. He has not fully worked out the pathogenicity of these organisms, but in one of the two guinea-pigs inoculated with five c.c. of the bouillon cultures caseous nodules developed in the peritoneum; the nodules varied from 5 mm. to 2 cm. in diameter and spreads made from them contained acid-fast bacili. Dr. Rosenberger also made homogenized cultures of the *Bacillus tuberculosis piscum*, *Bacillus tuberculosis avian*, and of various forms of pseudotubercle bacilli. Dr. D. H. Bergey read a paper in "The influence of Pasteurization on the Chemical and Physical Qualities of Milk." He presented the results of studies on samples of market milk Pasteurized in the laboratory. The bacteria found in milk are the lactic acid and the subtilis group. The bacillus may be present in sufficient quantities to affect the milk. Pasteurization, he said, destroys the *Bacillus acidi lactici* but not the *Bacillus subtilis*. From his bacteriological investigations he found that raw milk in the ice-chest contained 1,260 bacteria; in seventy-two hours it contained 17,000,000, but at room temperature 5,000,000. At the time Pasteurization was completed the milk contained 12 bacteria, at the end of seventy-two hours in the ice-chest it contained 148,000,000, in the room at the end of seventy-two hours 5,000,000. Pasteurizing, he said, removes the most reliable indicator of the changes that occur which make the milk unfit for use. The odor does not indicate the exact condition of the milk. At the time coagulation began he found that the raw milk contained from 50 to 10,000,000 bacteria, while Pasteurized milk contained from 5 to 10,000,000. He maintains that no single test conveys the accurate condition of the Pasteurized milk and that the number of bacteria present is the most reliable. Dr. Bergey stated that the Pasteurized milk should receive greater care at home than the raw article. While the *Bacillus subtilis* has not been proven injurious, the indications are that under certain circumstances it may be inimical to young children. The next paper was read by Dr. M. E. Pennington on "The Comparison of Pasteurized and Raw Milk." She began her paper by asking the following questions: Are we justified in accepting commercial Pasteurized milk on the findings of laboratory Pasteurized milk? Is Pasteurized milk sold in Philadelphia better or worse than before it is Pasteurized? In the best Pasteurizing plant she obtained the following results from her bacteriological investigations:

	Number of bacteria in fresh milk.	Twenty-four hours later.
Raw milk in reservoir.....	7,140,000	12,600,000
In milk after leaving cooling coil	3,000	6,000
In milk in pipe to bottle tank...	3,333	6,000
In milk when bottled.....	744,000	785,000

The following are the results from the worst plant:

Raw milk in reservoir.....	1,504,000	25,000,000
In milk after leaving cooling coil	18,000	360,000
When bottled	2,880,000	45,900,000

From the raw milk of the five dairies supplying these Pasteurizing plants she obtained the following average

results: The raw milk contained 5,276 bacteria, and twenty-four hours later it contained 114,542. Dr. Pennington found that Pasteurized milk soured in twenty hours, while raw milk soured in thirty-two hours. Her results seem to indicate that Pasteurizing by the city plants destroys the *Bacillus acidi lactici* present in the milk when delivered, and substitutes the *Bacillus subtilis* from unclean bottles, corks and city dust. Dr. J. Evans read the next paper on "Does Milk Possess Germicidal Properties." He found that in the milk obtained from the tapped cow udder, remained sterile for a week. He inoculated specimens of sterile, raw and Pasteurized milk with streptococci, staphylococci, *Bacillus subtilis*, and *Bacillus coli communis*. The streptococcus inoculation worked out as though the milk possessed germicidal properties. He concludes that raw milk to a certain degree inhibits bacterial growth for from four to eight hours. Dr. Abbott, in opening the discussion on these papers, said that Pasteurizing milk gives the dealers an opportunity to place unclean milk upon the market. Dr. Edsall, in the discussion, said Pasteurizing produced the following changes in the milk: (1) In the taste; (2) in the casein; (3) in the fat; (4) in the lecithin; (5) in the ferments lipase is destroyed; (6) immune bodies may be destroyed. He states that if the bacteria have produced toxins in the milk heat will not destroy them. Sterilizing the milk damages the nutritional value, while Pasteurizing, he said, does not. He is inclined to believe that it is better to feed children Pasteurized milk than to give them milk containing bacteria.

CHICAGO.

Gift to Presbyterian Hospital.—By the will of Harriet A. Jones, the Presbyterian Hospital of this city receives as a bequest $15,000. Mrs. Jones desired that $10,000 of the bequest to this institution be devoted to the assistance of convalescent patients.

Laboratory for Coroner.—One of the new features in connection with the Coroner's office is the establishment of a laboratory, which will enable the Coroner's physicians to make their analyses, and to constantly be in touch with the Coroner. The Coroner also advocates a law compelling undertakers to refrain from embalming bodies until after death certificates have been issued.

Appointment of Physicians at Dunning.—President Brundage, at a recent meeting of the County Board, submitted appointments to the consulting staff of the county institutions at Dunning. The appointments are as follows: Drs. Frank Billings, Wm. A. Evans, Edward J. Farnum, Alice Hamilton, Arnold C. Klebs, B. McPherson Linnell, John B. Murphy, Hugh T. Patrick, J. Rawson Pennington and Chas. S. Williamson.

Crusade Against Spitters.—During the last few days vigorous efforts have been made to enforce the anti-spitting ordinance. Hundreds of men were arrested and hauled into court for spitting on sidewalks and other places, and fined. It is thought that this will deter others from spitting in public conveyances, public halls, and all similar places, as offenders are liable to arrest and fine under an ordinance of the City of Chicago, which will be enforced from now on by the Department of Police.

Grace Hospital Opened.—This new hospital was recently opened with a reception for the physicians of the West Side and their wives. The new hospital is the result of the united effort of West Side physicians, who felt the lack of a hospital in the district where it stands. Dr. A. M. Harvey is president of the institution. The staff consists of Drs. C. C. O'Byrne, J. S. Nagel, F. A. Phillips, M. D. Bates, J. J. Anderson, A. E. Bertling, A. A. Whamond, W. F. Duckett, C. W. Harrison, and Howard Crutcher.

GENERAL.

Honorary Degrees at Edinburgh.—The senate of the University of Edinburgh has voted to confer its honorary doctorate of laws on Dr. Alexander Graham Bell, of Washington, D. C., and on Dr. W. W. Keen, professor of surgery at Jefferson Medical College, Philadelphia.

Dr. Willy Merck.—The University of Halle, Germany, has conferred upon Dr. Willy Merck, member of the old house of E. Merck, Darmstadt, established in 1668, a very high distinction, namely, the honorary degree of Doctor of Medicine "in recognition of numerous meritorious contributions looking to the advancement of the therapeutic side of medicine."

Dr. Weir Mitchell.—Dr. S. Weir Mitchell, the eminent physiologist, physician and author, celebrated his seventy-fifth birthday on February 15. Dr. Weir Mitchell presented the candidates for honorary degrees at the celebration of the University of Pennsylvania on February 22. Degrees were conferred on President Roosevelt and on the Emperor of Germany.

Breakers-Up of the Dead.—From *World's Work*, the following account of a peculiar vocation in Lhasa is taken. It is a town of low, uninteresting houses, herded together in an aimless confusion, but beyond question the most ragged and disreputable quarter of all is that occupied by the famous tribe of Ragyabas, or beggar scavengers. These men are also the breakers up of the dead. It is difficult to imagine a more repulsive occupation, a more brutalized type of humanity, and, above all, a more abominable and foul sort of hovel than that which is characteristic of these men. Filthy in appearance, half-naked, half-clothed in obscene rags, these nasty folk live in houses which a respectable pig would refuse to occupy. A characteristic hut is about four feet in height, compounded of filth and the horns of cattle. These men exact high fees for disposing ceremonially of dead bodies. The limbs and trunk of the deceased person are hacked apart and exposed on low, flat stones, until they are consumed by the dogs, pigs, and vultures, with which Lhasa swarms.

Consumption Among Shoe Workers.—An astonishing statement comes from Lynn, as to the number of deaths there from consumption among shoe operatives, there having been 160 within the past three years. Considerably more than half the total number of deaths were from that disease, there having been 297 in all. Hygienic and sanitary conditions must be very much in need of betterment when such a proportion as that is recorded of deaths due to one disease. The savage winds of the East coasts are not soothing or healing to delicate lungs, as many St. Louis people are aware who have lived there, but the deadly effect would hardly be credited except for reliable statistics. There are a number of Lynners in the St. Louis shops. Most of them look solid and hearty, physically. The dry, crisp Western air appears to agree with them. It would appear advisable when such a preponderance of deaths resulted in any community from a single disease, to take prompt steps to improve conditions. There is certainly an appreciable economic loss in a death every week (in the average) from a disease that modern science declares is, to a large extent, preventable.

The Japanese Bath.—The betterment workers of the Colorado Fuel & Iron Co. have encountered some very interesting phases of human nature in their work. An amusing instance of race customs and prejudices is recorded in the March *World's Work* by Mr. Lawrence

Lewis, as follows: Differences in customs, too, require careful study. For example, a gang of fifty Japanese miners, after working two days in one of the large mines, sent a polite message to the superintendent, that it would be impossible for them to continue to work unless provision were made for them to take baths every day when they came from the mine. This made the company's surgeon—who had striven, sometimes vainly, with Mexicans, Slavs and Italians to induce them not to slaughter goats in their sitting-rooms, and at least to throw offal outside the houses where the company's scavenger could get at it on his daily rounds—almost delirious with joy. The superintendent had a large tank constructed of boiler-plate. Every day this was filled with fresh water, which was heated by a fire built beneath and by hot stones thrown into the water. At the change of shifts, all the Japanese, who made no further complaints, went into this tank and thoroughly bathed before going to their houses. The Italians and other "Christian" workmen, who luxuriate in the accumulated sweat and coal dust of years, and whose children are regularly "sewn up" for the winter, spoke with contempt of the "little heathen monkeys" who "must be very dirty since they love to bathe so much."

Annual Meeting of the Instructive District Nursing Association.—A meeting was held at Boston recently by the Instructive District Nursing Association. Mrs. Elizabeth P. Cordner presided, and addresses were made by the Rev. Paul Revere Frothingham, President Robert A. Boit, of the Boston Dispensary, Dr. Arnold F. Furrer, house physician of the Lying-in Hospital; Miss Stark, superintendent of the district nurses, and Helen E. Cary, nurse, the latter outlining her day's work among the sick. In her report the secretary, Mrs. E. A. Codman, said the association was founded nineteen years ago by Miss Abbie C. Howe and Miss Phœbe G. Adams in Boston, and has become a large and necessary body, employing a large number of nurses. The association needs $16,000 for its work in Greater Boston. The cooperation of all the hospitals in Boston has been of great service in developing it. For visits this year the association has received $126.75, which is a great increase over previous years. People able to pay 50 cents a visit or $10 a week generally are referred to the Nurses' Club, which supplies nurses at those rates. The staff last year consisted of a superintendent and assistant, 13 nurses and office agent, and the number of cases attended last year was 8,122, and the number of visits made 75,420. Through the kindness of Dr. G. S. C. Badger, a course of lectures for nurses was carried on. This year Dr. Samuel Robinson has arranged the course. The lectures have been given by Dr. Harris P. Mosher, Dr. C. Morton Smith, Dr. Arthur W. Fairbanks, Dr. Joshua C. Hubbard, Dr. Daniel H. Craig and Dr. Samuel Robinson. During the year a legacy of $100 from the will of Mme. Gaillard, a gift to the permanent fund of $200 from H. E. C., $100 from the Roxbury Charitable Society, and $500 from a member of the Church of the Advent were received. Miss Carey gave $700 for the support of a nurse, in memory of her mother, Mrs. Richard Carey, and in January $1,000 was received from the Society for the Relief of Sick poor in Roxbury, and with the consent of Miss Carey and the Roxbury society two more nurses were named, thus giving the association seven named nurses, leaving three more to be supported.

OBITUARY.

Dr. E. C. W. O'BRIEN, one of the best known physicians in the upper part of the State, died in Buffalo last week. He was curator of the University of Buffalo and was an alienist of high reputation. President Cleveland sent his name to the Senate to be Health Officer of the Port of New York, but the nomination failed of confirmation. Dr. O'Brien was about sixty-five years old.

Dr. WILLIAM EDWARD GRIFFITHS, a well-known Brooklyn physician, died last Monday at his home, 320 Schermerhorn street, Brooklyn, N. Y., in his sixty-third year. His great-grandfather, John Griffiths, came from France as a lieutenant under Lafayette in 1777, and served all through the Revolutionary War. Before his graduation from the College of Physicians and Surgeons of New York in 1868, Dr. Griffiths served for two years as surgeon's steward on the United States frigate Colorado in the Civil War. He was visiting surgeon and consulting physician of St. Mary's Hospital and a member of the Kings County Medical Society. He served for fourteen years in the Brooklyn Health Department as a sanitary inspector and chief inspector of contagious diseases.

Dr. JOHN HERBERT CLAIBORNE, one of the best known physicians in Virginia, died at his home in Petersburg, Va., last week, after a brief illness. In June, 1864, when General Lee's army occupied Petersburg, Dr. Claiborne was senior surgeon of the post and chief surgeon of all the military hospitals in Petersburg. He was ex-president of the Medical Society of Virginia, a member of the Southern Surgical and Gynecological Association, of the American Medical Association, a member of the American Health Association and the Boston Gynecological Association, and a Fellow-elect of Victoria Institute of Great Britain. He leaves a widow and several children, among whom is Dr. John Herbert Claiborne, Jr., of New York.

CORRESPONDENCE.

OUR LONDON LETTER.

(From our Special Correspondent.)

LONDON, February 18.

DEATH OF A FASHIONABLE DOCTOR—CHARLATANISM AND SUCCESS—SCHOOL HYGIENE—THE PREVENTION OF SEA-SICKNESS—THE MEDICAL SERVICE OF THE NAVY.

DR. ROBSON ROOSE, who has just passed away at the age of fifty-six years, spent the last few years of his life in a state of what astronomers call occultation. Although he never held a place even among the *minora sidera* of scientific medicine, he shone for a long time in the public eye by a kind of literary flashlight advertisement, and in this way came to be taken by London society for a professional star of the first magnitude. In his early days he walked the trivial round of drudgery in the lower walks of practice, till fortune smiled upon him in the shape of an elderly lady who bequeathed him a comfortable property. His aspiring soul being set free for a loftier flight, he established himself as a quasi-consulting physician at Brighton, a health resort on the South Coast much frequented by the fashionable world. There, to speak, like Hamlet, "tropically," Roose soon waxed fat, and he soon sought a larger sphere for his undoubted business ability in London. For many years the aristocracy and plutocracy of this country sought counsel of him as if he had been an oracle of God. Nor was it only the "better vulgar," as old Bishop Warburton styled them, that he dragged captive at his chariot wheels. Among his most confiding patients were leading statesmen like Joseph Chamberlain, Randolph Churchill and the Duke of Devonshire; shrewd men of the world like Henry Labou-

chere, the genial editor of *Truth;* Edmund Yates, founder and for many ears editor of the *World;* Burnand, the editor of *Punch;* Escott, formerly editor of the *Fortnightly Review,* and many other men of light and leading in the political and literary worlds, not to mention bishops, judges and magnates of all kinds. The journalists "boomed" him to such an extent that his name became to judicious readers as great a bore as that of Aristides the Just did to the illiterate voter of Athens. He was privileged to physic the family of our present Gracious Sovereign. And yet the man was looked upon by those who trusted him so much as little better than a fool outside the narrow circle of medical practice. They were never tired of telling stories of his ignorance and ineptitude; they regarded him as intellectually a cipher and treated him at his own table as, from a conversational point of view, a negligible quantity. As a personality he was *nil.* Yet the men who laughed most at him believed in him with unshaken faith as a "good doctor." What then, it may be asked, was the secret of his success? The answer is that, unlike John Arbuthnot, who "knew his art but not his trade," Roose always understood the patient, however little he might understand his disease. He never lost an opportunity of throwing out a line and in this way he landed many a big fish. At a country house he would talk to the people whom he met about their looks and suggest that they should allow him to overhaul them in a friendly way while they were dressing for dinner. To those who rejected these overtures he would discourse warningly about "latent germs of disease." He came to be known as the "touting doctor," but how well Roose understood the average man is shown by the fact that many of those who complained of his touting afterward became his patients. He was a great giver of dinners, always with an eye to business; and he did things in this way that a man of less cheerful impudence would never have dared to attempt. Having got hold of some first rate decoy ducks like the late Duke of Beaufort and Ismail Pacha, he would ask prominent personages with whom he had scarcely any acquaintance to meet them. And as snobbishness springs eternal in the British breast, they accepted his invitations. Political leaders came to look upon his house as a neutral territory where they could meet "without prejudice," as the lawyers say. Another means of keeping his name before the public was the writing of books and articles in the monthly magazines. Roose could hardly put two sentences together, but a man with money can always go into the market and hire a scribe. With the help of an "affable familiar ghost," he gave the world his views on gout, on nerve prostration and kindred matters. There was nothing in his books, but they served their purpose. For a long time Roose was the spoilt child of fortune; then came a cloud of financial trouble which overshadowed the later part of his career. If there was a good deal of the charlatan in him there was much also that was good, or he never could have held so many men of intellect and character in bondage.

After all Roose was no worse than most physicians who achieve what in the eyes of the world is the highest success. Not long ago Sir William Broadbent, in an article published in our leading monthly magazine on the late Dr. T. Maclagan, who introduced the salicin treatment for rheumatism, said that "he lacked one element which goes far to constitute the successful family doctor—a touch of charlatanism." But it is not by any means the family doctor alone whose success is promoted by a touch of charlatanism. Andrew Clark had a touch of it; Charcot and Henry Thompson had more than a touch, while in Gull, Quain and Morell Mackenzie it was an active ingredient. Clark had a certain set of general observations, a regular formula, and a fixed dietary which he invariably used with his patients, contriving to give each of them the impression that the directions for treatment were especially adapted to his case. His power lay largely in suggestion. "You may depend upon it," he would say, "Nature is inexorable. You cannot evade her. Sooner or later she will repay." These platitudes delivered in the tone of Sir Oracle made the dyspeptic, the neurasthenic and the brain-weary feel that they were getting treasures of practical wisdom in exchange for their guineas. Of Gull's power of saying nothing in language that seemed to mean something the stories are innumerable. Sir Samuel Wilks, for many years his colleague at Guy's Hospital, relates how he once gained the confidence of a hypochondriac with whom every other physician had failed. The patient, like all of his class, wished the doctors to believe in his different ailments, but at the same time would have been much alarmed if he had been told that there was anything the matter with him. Gull at once said to him, "You are a healthy man out of health," an explanation which so satisfied the patient that he asked Wilks why other doctors could not have told him that before. Again, a lady much out of health and having palpitation of the heart, believed she had disease of that organ, and accordingly consulted various physicians, at the same time telling them of the unheard of trials and worries she had undergone. They were all agreed that she had nothing the matter with the organ on which her whole thoughts were concentrated. She was dissatisfied, and determined to go to Gull. On her return home she said he at once perceived her ailment, for he said to her: "Madam, you have a tired heart." Perhaps Gull's greatest triumph in this kind of diplomacy was in the case of one of the biggest of Jewish financiers. The patient had Bright's disease, but the physician in attendance did not think it politic to communicate this fact to his wife lest his hated rival Gull should be called in. After pressing in vain for some definite information she insisted on calling in Gull, who, when interrogated, said: "Madam, your husband has a cachexia." "There," said the lady, turning to the discomfited physicians, "I knew Sir William Gull would know what is the matter with my husband." Sir Francis Laking, who has displaced Broadbent in the confidence of the Royal family, though only a practitioner of the most ordinary type as far as scientific knowledge goes, is a consummate diplomat. Broadbent held it to be inconsistent with his duty as a physician to prophesy smooth things; such a man was out of place at Court where unpleasant truths must be conveyed, like M. de Pourceccugnac's clyster, in the blandest and most benign manner.

A conference on School Hygiene organized by the Royal Sanitary Institute with the object of arousing public interest in the matter and so preparing the way for the International Congress which is to be held in London in 1907, was opened on February 7 under the presidency of Sir Arthur Rucker, Principal of the University of London. Among the subjects discussed was physical and mental development during school life. As the outcome of the debate it was resolved that the Council of the Sanitary Institute should be asked to bring the following propositions to the notice of education authorities: (*a*) That for younger scholars, at all events, there should be no home lessons after school hours. (*b*) That the periods for school lessons should be short (twenty to fifty minutes), and that there should be increasing intervals of not less than five minutes between successive lessons, for recreation, taken

if possible in the open air. (*c*) That suitable breathing exercises should be practised at least once during each school session, in the open air or in well-ventilated rooms. (*d*) That organized drill should be regularly practised by the pupils in every school. (*e*) That the acquisition of swimming should be encouraged in every school, and should be taught to the pupils wherever practicable. (*f*) That an efficient system of fire-drill should be compulsory in every school (and in each "house" of boarding schools conducted on the house system), and should be practised at least three times in the course of each school term. (*g*) That in the opinion of this meeting of the Conference on School Hygiene ample hours of sleep, according to age, are essential to the wellbeing of growing boys.

The physical inspection of school children was also debated and resolutions were passed that inspectors of schools should be qualified in hygiene and familiar with the development of child life. The attention of the Board of Education was called to the results of an inquiry made both in urban and in rural schools among inspectors and teachers which showed the great importance of appointing properly qualified women as inspectors for infants' and girls' schools of all grades, for pupil teachers' centers and for training colleges. The meeting further expressed the opinion that having regard to the greater susceptibility to infectious diseases among school children, no child should be allowed to begin formal instruction in classes under the age of six years. It further asked that there should be regular and systematic medical inspection of children in schools of all grades.

Another subject discussed was the sanitary inspection of schools, but after much discussion the only conclusion arrived at was that the question should be referred to the Council of the Sanitary Institute for consideration. Mr. Walter Whitehouse, a London dentist, claims to have solved the problem of sea-sickness. His contrivance is described as a self-levelling bunk. It is suspended in a steel framework from the roof of one of the deck cabins, and the motion of the boat is counteracted by four cords from each corner, which pass through electric brakes. These automatically maintain the cot in a horizontal position. The berth is fitted with a water mattress, and has an electric fan which can be set in motion by touching a button, and drives a delicious draught across the face of the occupant. The berth is said to be motionless, however heavily the sea may be rolling. Two boats, the "Lord Warden" and the "Calais," which carry passengers across the channel, have been fitted with the swinging cots, on the perfecting of which the inventor says he has spent three years. Mr. Whitehouse, who says he is a bad sailor, assures us that ensconced in his swinging cot he thinks no more of crossing the Channel than of drawing a tooth. But things which succeed with the inventor have an unfortunate tendency to fail when tried by other people. The principle of the swinging berth is of course not new. One remembers the *Calais-Douvres*, which was a vessel with a hull within a hull, the inner being swung and balanced so as not to move the outer. That vessel ran for many years between Calais and Dover, but it did not appreciably diminish the amount of seasickness among its passengers. The *Castalia*, another ship which made the same passage a few times some twenty-five or thirty years ago, was another illustration of the difference between theory and fact. The idea was to minimize the pitching and rolling by means of a saloon suspended like a hammock. The public found the *Castalia* a failure, and even its inventors were fain to admit that if the rolling was lessened the pitching was not diminished. A German inventor not long ago read a paper before the Society of Naval Architects in which he proposed to fit an enormous fly-wheel weighing several tons to passenger steamers; according to the inventor, the "gyroscopic" effect of this apparatus would keep the vessel steady even in rough weather. This dainty device was never, I believe, tried at sea.

Our administrators are never tired of tinkering at the medical services of the Army and Navy. The Navy at present rejoices in a chief, Sir John Arbuthnot Fisher, who is anxious that every one under him should have the strenuous life. There is of course an excellent thing, but the chief himself is perhaps a little too strenuous. Seeking everywhere for outlets for his reforming energy, he naturally comes across the medical service of the Navy. It is only about a year since important reforms were made in that service which have gone far to make its officers contented with their lot—no mean achievement with a body of men who are somewhat difficult to please. It is rumored, however, that Fisher intends to make some further changes of a drastic character. He is credited with the intention of reforming the service altogether—by the summary process of abolishing it. His scheme is said to be to engage civilian practitioners for the length of the ship's commission—usually three years—leaving them at the end of it free to engage again if they think fit. The pay is to be at a uniform rate of five dollars a day, and there will be no pension—only a gratuity of $2,500 after a period of service exceeding five years. Lord Wolseley cherished the idea of providing medical attendance for the army by the same simple plan, but had to abandon it as unworkable. The report seems too absurd for belief. But unfortunately the fact that a project is absurd and impracticable affords no security that administrative reformers will not attempt to put it into execution.

SOCIETY PROCEEDINGS.

CHICAGO SURGICAL SOCIETY.

Stated Meeting, held November 22, 1904.

The President, Arthur B. Hosmer, M.D., in the Chair.

Congenital Deformities of the Knee.—Dr. John Ridlon read a paper on this subject, and said that congenital deformities of the knee are often called congenital dislocations, but in so far as he knows true congenital dislocation does not occur at this joint. The congenital defects and deformities at the knee were mentioned. The cause of them is not known. Many interesting theories have been advanced, but none have been substantiated in any more than a few instances, in fact usually in only one instance. His own opinion is that these conditions are only some of the many instances of defective development of the embryo. The only basis of this opinion is the fact that these knee defects are, as a rule, associated with other congenital defects, such as clubfoot, clubhand, congenital dislocation at the hip, defective shoulders, elbows and wrists. He has had one case of congenital in-knee. The in-knee deformity was associated with an equal amount of flexion deformity, and with congenital talipes equinovalgus. The child is now three years of age, but the patella cannot yet be felt. The knee deformity was corrected about a year ago by forcible hand straightening and prolonged retention in a

plaster splint. Congenital out-knee he has not seen. Theoretically, one should treat it on the same principles as in-knee. Both conditions should be corrected by osteoclasis or by osteotomy. In congenital flexed knee the knee cannot be fully extended to the straight line to within fifteen or twenty degrees. Sometimes it cannot be flexed more than for a few degrees. The patella may be present or may be absent. He has had one case of flexed knee in conjunction with in-knee, and two patients, four knees, with flexion deformity without lateral deformity. One of these cases also had congenital talipes equinovarus, dislocation anteriorly of both hips and flexion deformity at the elbows similar to that at the knees. The other child had all these defects and in addition adduction deformity at both shoulders and clubhands. The treatment of flexion deformity at the knee consists in forcible manual straightening, with prolonged retention in plaster splints, followed by massage and passive flexion exercises. The congenitally hyper-extended knee is commonly called genu recurvatum. The knee is in no sense curved or recurved. The deformity is an angular one, with the opening of the angle in front, the shin approaching more or less nearly to the anterior surface of the thigh, it being possible in untreated cases to flex the leg on the thigh not beyond, and sometimes not to, a straight line. During the past twelve years he has seen seven such knees in four patients. In all the patella was absent at birth, and only appeared when, after treatment by passive motion, it was possible to fully straighten, or somewhat flex, the legs on the thighs. One child had both knees hyperextended; one, a sister of first, had both knees hyperextended and one hip dislocated; another had both knees hyperextended and double talipes equinovarus; and the other child had one knee hyperextended, the talipes equinovarus and dislocation of the hip on the same side. The treatment is daily massage and strong passive flexion of the legs on the thighs. In one of these patients, an infant in arms, the mother while making strong passive flexion fractured the femur near its lower end. He was not able to satisfy himself whether the fracture was at the epiphyseal line or just above it. Of outward rotation of the tibia on the femur, he has had one patient, two knees. There was also flexion deformity and permanent outward displacement of the patellæ. This patient was nineteen years old when he came to Chicago from Nebraska to consult Professor Lorenz. Patient gave the following history: He was born with his legs and feet turned backward, When three months old some operation was made to correct the deformity. This left him with legs flexed on the thighs about forty-five degrees. Through subsequent stretching, when he was five years old, and again when he was twelve, the angle was reduced to about fifty degrees. He was unable to voluntarily straighten the legs beyond forty-five degrees, and wore braces to get around. Professor Lorenz, when he examined him, told him that there was no similar case on record. He expressed the opinion that an operation would be of benefit, and referred him to Dr. Ridlon for treatment. Examination at this time showed a flexion deformity of about forty-five degrees. Beyond this point the legs could be flexed normally. There was practically no lateral deformity. The tibæ were rotated outward on the femora about forty-five degrees. The patellæ lay directly to the outer side of the outer condyles, and were of nearly normal size. In discussing the case with Professor Lorenz, he (Lorenz) advised using the utmost manual force to loosen up these knee-joints, not only to correct, but if possible overcome, the flexion deformity, and if possible rotate the tibiæ to their normal relations. The operation, with these hopes in view, was made by Dr. Ridlon on December 1, 1902. He was able to fully extend, even overextend, the legs on the thighs, but was not able to rotate the tibiæ into any appreciable extent. The knees were put in plaster splints somewhat hyperextended. He did not see the patient until some four or five days later. At that time both feet were greatly swollen and there was complete loss of sensation and movement in them. The plaster splints were opened up and the knees allowed to flex sufficiently to relieve the tension. The swelling rapidly disappeared from the left leg, and sensation and motion returned after some months. On the right leg there was an enormous blood blister some three inches wide, and extending from the middle of the leg to the heel, and along the entire outer side of the foot. At the knee there was a pressure sore, some two inches in diameter, and at the back of the ankle another some four inches long. In addition to this, the whole foot and two-thirds of the leg showed beginning gangrenous discoloration. Hot boric acid applications gradually cleared up this condition; but sensation and motion did not fully return for more than a year. After the dangerous symptoms had subsided, plaster splints were again applied with the knees slightly flexed; and these were worn with one change until July 13, 1903, about seven and a half months. Since then he has been treated by massage and active and passive movements, and he is now able to walk with a cane. (Patient was exhibited, and walked without a cane.) The immediate results from this operation show very clearly the risks from overstretching blood vessels and nerves; and the final result shows that it is possible to gain a functionally good limb in these cases of permanently displaced patellæ without a radical cutting operation.

Bilateral Torticollis Incidental to Friedreich's Disease.—Dr. Frederick Cleveland Test showed a man, forty-two years of age, who, in 1890, following an attack of grippe, was seized with practically complete loss of voice. Following a second attack of grippe, in 1894, a few weeks after the onset he was awakened during the night by finding that his head had begun a series of spasmodic movements from one side to the other. These movements have kept on, varying, sometimes worse, sometimes better, from that time to this. At present the spasmodic contractions are materially less than they were a year and a half ago, the length of time the patient has been under Dr. Test's observation. The condition, he said, is that of Friedreich's disease, in which the choreic movements of the head, and sometimes of the arms, are usually present in the severer cases of long standing. Ataxia of the legs and of the hands is marked, so that the patient is scarcely able to walk or write; but this was not noticed by him until he came to Chicago from his home in Nebraska; that is, the movements of the head were so markedly severe that they occupied practically all of his attention, so that he cannot tell just when it was he began to walk imperfectly. He walks now somewhat better than he did, but not very much better, and while he has of late years acquired the

habit, or devised a method, of holding his head with his right hand to limit the movements of it, still the contractions are so great that when he is not wearing a brace, he needs to hold his head with one hand in order to be able to walk and keep his balance, and see where he is going. He presented the patient because the spasmodic contraction is double in character. Spasmodic torticollis ordinarily is unilateral, while in this case it is bilateral. It is apparently a contraction due to alternate contraction of the sternomastoid muscles, although he was inclined to think that some other muscles were involved ot a varying extent. But the sternomastoid is the muscle that is most affected. Dr. Test said he had some thoughts later on of doing resection of the spinal accessory nerve, but it was at present under advisement.

For the last sixteen months patient has had, with a few interruptions, daily treatments of electricity of the high frequency type, and during the first four months improved greatly, so much so that he was able to write a considerable number of words before his hand began to lose power to guide the pen properly. His ability to walk increased, so that he walked the distance from his house to Dr. Test's office, a mile and one-quarter, in twenty-seven minutes, whereas four months previously it took him forty-five minutes. The head movements decreased in number. Since a third (light) attack of grippe which he suffered last October, thirteen months ago, the ataxia has remained at a standstill; that is, there has been no apparent improvement in the ataxia of the legs or of the hands or arms. The torticollis, however, has improved, slowly, since that time. As treatment, patient has had extract of spinal cord, zinc phosphide, hyoscynamine, lecithin, and two or three other agents that have been recommended by consultants. As usual in these nervous cases the contractions are worse when he is thinking about them; but when he is reading a paper, for instance, with his attention concentrated on something, there is almost a cessation of the contractions; and at night, when he is asleep, the contractions are at a standstill. The muscles involved seem to be those in front of the neck. As is usually the case with Friedreich's disease, this patient has right upper dorsal scoliosis.

Dr. Wallace Blanchard said if his memory served him right, in Friedreich's disease there is very seldom much ataxia; although Dr. Test's case might be an exception to that rule.

Hereditary Ataxia.—Dr. Test said the technical term for Friedreich's disease is "Hereditary Ataxia," which, he thought, would settle the matter as to whether ataxia is ordinarily present or not. There was no family history of ataxia obtainable, but there was one marked neurotic condition present, and that is, the father, mother, and two or three brothers, and sisters of the patient are Christian Scientists! In that respect there is undoubtedly a family neurosis! But there is no spinal neurosis in any member of the family of which he could obtain a history. He believes that in Friedreich's disease, which is the first cousin to locomotor ataxia, the ataxia is a marked symptom. In Friedreich's disease ordinarily the attack comes on in childhood, from ten to fifteen or twenty years of age. In the present case the patient was twenty-eight years old before he lost his voice, and thirty-two years before the choreiform movements or torticollis began.

Dr. Blanchard has seen several cases of Friedreich's disease occur from fright, falls or sudden shock, in adults without any ataxia. At that time he paid very little attention to this subject. But it seemed to him as if ataxia was excluded from Friedreich's disease, the spasmodic condition being brought on, as it usually is, if he understood it correctly, by sudden fright or injury.

Dr. Ryerson said the man had an intention-spasm which simulated somewhat paralysis agitans.

Dr. Test said the patient had been seen by Dr. Daniel R. Brower, who agreed with the diagnosis of Friedreich's disease. In the literature of the subject ataxia is mentioned as one of the earliest and most prominent symptoms, beginning in the feet, and finally involving the legs and body.

Dr. Arthur B. Hosmer concurred in what Dr. Test had said, namely, that Friedreich's disease and Friedreich's ataxia are synonymous terms among neurologists, and he had always understood that it was invariably hereditary; although traumatism might be an exciting cause of tuberculosis, he did not think this ataxia was due to fright or traumatism. Ataxia usually of all four extremities is an invariable accompaniment of the disease. It seems strange that the disease should have developed at so late a period as it had in this case. He supposed it had its incipiency at about the age of puberty.

Dr. Ryerson called attention to the patient's gait, saying it was more of a spastic gait than an ataxic one.

Dr. Hosmer said locomotor ataxia was usually regarded as a disease of syphilitic origin, involving the cord, while Friedreich's ataxia involved the cerebellum as well, consequently the gait was more or less spastic from the irregular contractions of different muscles here and there. As to the utility of resecting the spinal accessory, it would stop the spasm in the sternomastoid only temporarily. If, in this case, all of the outer muscles were involved, he doubted very much whether there would be permanent improvement from resection of the spinal accessory.

Two Cases of Hereditary Contracture of the Feet, with Operation.—Dr. John Lincoln Porter stated that although the influence of heredity in the etiology of Dupuytren's contraction of the palmar fascia has been recognized as a factor in many instances, the occurrence of an analogous condition in the feet, with distinct hereditary history, seems to have been observed so seldom as to make these cases of interest. He has found nothing on the subject in the literature. In 1885, Shaffer described under the title "Non-Deforming Clubfoot" a very similar condition, but his cases differed from those of the essayist in several particulars, and so far as the title "non-deforming" is concerned, it would certainly be a misnomer for his cases, as the deformity was marked in both. Shaffer does not mention the factor of heredity in the etiology of any of his cases. Whitman describes the condition more nearly under the title of "Contracted Foot," but neither does he seem to have noticed any hereditary influence in his cases. The condition is also described very closely by other writers under the names talipes arcuatus and talipes plantaris, but perhaps because the patients were younger, the deformity in all cases reported seemed to have been less than in his. To be sure, the disability if more prominent than, and out of proportion to, the de-

formity, but he believes every case that is allowed to go on to middle life without treatment will result in as much distortion as the ordinary paralytic clubfoot. The condition in an advanced case is as follows: The anteroposterior arch of the foot is increased, producing a hollow foot, and the convexity of the dorsum is correspondingly increased; the foot turns inward, usually in a position of slight varus, although in some cases the foot is everted as in flatfoot. The toes are flexed, like a hammer-toe, and when the patient stands the ends of the toes come firmly down on the ground. The weight is borne on the heels and heads of the metatarsal bones and the patient walks stiffly with an inelastic, jarring gait, as in flatfoot. Dorsi-flexion of the ankle is lost and usually the motion in pronation and supination is very slight. The patient complains of pain in the arch of the foot, often extending up into the calf, and also of pain in the transverse arch, which is usually obliterated. The pain grows worse, involving the whole foot and leg upon long standing, or walking, and some of the cases are virtually crippled from the pain and disability and unable to walk but a short distance without rest. Pathology can hardly be discussed, as so little is known.

Case I.—In May, 1903, Mrs. E. F., came under observation with the following history: Aged thirty years; housewife; had for many years had weak feet and painful cramping pains in the feet upon walking. This had grown gradually worse until her first child was born, when it grew worse rapidly. She has had two children in the past four years, and during that time her feet had become so bad that she could scarcely get about to do her housework. She had to sit down and rest and change her shoes several times a day, and did not pretend to walk outside of the house. She could not walk at all without shoes. Her mother is living and well, except for a facial paralysis which she has had since childhood. Father dead; cause of death not ascertained. He had Dupuytren's contraction of palmar fascia and some trouble with his feet which practically crippled him, and for which he had some of his toes amputated. The patient believes her father's trouble was identical with hers. She has a sister, older, who has the same trouble, and a brother, younger, who has trouble with his feet, but not as bad. A still older half-sister by another father has no trouble whatever. Marked increase in arch of both feet; heads of metatarsals very prominent on plantar surface, and covered with calluses. Toes dorsiflexed at first phalanx, and plantar flexed at the ends, and joints covered with calluses. Feet cannot be dorsiflexed beyond a right angle, and only to that degree by great force. Cannot take two steps without shoes, and inner sole of shoes has two rows of deep indentations where heads of metatarsals and ends of toes have made pressure. The plantar fascia feels hard, especially the inner half. The tendo-Achilles prominent; feet slightly inverted in walking, and the ankles tend to turn out.

Operation, May, 1903. Tenotomy of flexor longus pollicis and flexor communis digitorum at the inner malleolus by open incision and of the short flexors at the roots of the toes. Section of the plantar fascia subcutaneously and of all tense tissues that could be felt through the skin. Then the foot was forcibly flattened out and softened as much as possible by manipulation, and the toes extended. Then the tendo Achillis was divided subcutaneously and the feet dorsi-flexed and put up in plaster. The patient was advised to begin standing on her feet as soon as possible, which she did in about ten days, and in spite of dissection of the tendo Achillis she was able to walk in the plaster casts in about two weeks. The casts were removed in four weeks, and the patient went home, wearing shoes with the toes strapped down to an insole. She has been very greatly improved and able to walk good distances, and do her work as housewife on a farm. She was instructed to keep all the tendons of the feet stretched by exercises and massage for fear of a relapse. Lately, she has written him complaining of some pain in the feet, particularly in the dorsum of one foot. In June last (1904) her older sister came to him for relief from the same condition. Her disability was even greater than her sister's, and this was made still worse by mutilation, she having had the second and third toes of one foot and the middle of the foot amputated some three years ago. This operation was done under the delusion that the trouble lay in the cramping of the toes, and the patient says that since the toes were amputated the feet had grown rapidly worse. When she appeared for operation she hobbled around and could scarcely stand without shoes on.

Case II.—A similar operation to the one described above was done, except all the flexor tendons were divided at the roots of the toes instead of going after the long flexors behind the malleoli. Even after section of all the tendons and fascia, great force was required to soften up the feet and extend the toes, and one toe was so resistant it had to be attacked three times, and finally the scar tissue about it resulting from the amputations had to be divided freely as well as the skin on the plantar surface. Recovery took longer than in the first case, but the patient is now going about her occupation, very much improved, and very comfortable.

Case III.—The brother, younger than either of the cases reported above, has typical weak feet, though the arches are not flattened. Dr. Ridlon fitted a footplate for one foot two years ago, and he was very comfortable until the past summer, when he began to complain of recurring weakness and beginning trouble in the other foot, when he advised him to have plates made for both feet. After ten days' rest in plaster-of-Paris for the worse foot, a pair of plates with flanges to prevent pronation were fitted, and patient was now on his feet all day, with perfect comfort.

Dr. Porter's cases were discussed by Drs. John Ridlon and A. B. Hosmer.

Dr. Arthur B. Hosmer showed a combination of shoe and brace for supporting weak foot.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held November 9, 1904.

The President, Dr. Roland G. Curtin, in the Chair.

Fibroma of the Uterus, Complicated by Disorders of the Heart and Kidneys. Uremia Without Nephritis from Tumor Pressure.—Dr. George Erety Shoemaker said that later observations of this class of growths had shown that the harmless tumor is comparatively rare, if the past, present, and future of the individual are considered. Some complications are caused by the tumor, others are aggravated by its presence. Salpingitis, peritonitis, intestinal obstruc-

tion, dystocia, diseases of the bladder, secondary anemia, depression of the nervous system from starvation due to hemorrhage, ascending kidney disease, dilatation of the heart from back pressure, and degeneration of the heart muscle may be mentioned. Questions of management in the relatively simple groups which differed from those where serious diseases of other organs exist. The nicest consideration, Dr. Shoemaker said, must be given to individual conditions. Cases having visceral lesions may be operated with advantage, if the presence of the tumor seriously exhausts the vitality or complicates the situation, provided that a reasonable margin of safety can be shown. Careful preparation of the individual is then essential, possibly lasting weeks. Surprisingly good results follow. Cases were given which recovered from hysterectomy, one showing mitral disease, another arteriosclerosis and valvular disease of the heart, another profound uremia without nephritis due to ball valve pressure of an enormous movable tumor intermittently obstructing ureters. Still another case showed serious heart weakness, etc.

Dr. Judson Daland thought that the recurrence of hemorrhage over a period of two years in one case showed the probable effect in heart action. The thing most apparent by the report is that even in those cases in which the conditions made operation necessary there was no serious heart complication, showing that in a number of cardiac diseases, more or less serious, where abdominal section may be demanded, the operative procedure coupled with anesthesia may be performed without serious hemorrhage. He thought that on the whole the danger to such cases was less than has usually been supposed from previous studies of cardiac cases in relation to operation.

The Schott Method of Treating Diseases of the Heart and Blood Vessels.—Dr. James M. Anders pointed out that confusion reigns in the minds of many physicians as to what constitutes suitable cases for the Schott method of treating chronic cardiovascular affections. On the other hand, the Schott method, he believed, had not been as universally appreciated as it deserves. He emphasizes the fact that while a salubrious environment shares in the production of the beneficial effects from this mode of treatment, the principal factors are the methodical use of the saline baths and the "resistance exercises." The baths exert a beneficial influence in various directions in cardiac insufficiency, and prominent among the salient results are a more vigorous systole, with diminution in the size of the dilated heart and a reduction of the pulse-rate.

Especially noteworthy are the effects in impaired nutrition of the myocardium in consequence of a freer, coronary circulation. He had seen all the usual evidences of an impaired circulation presented by the different organs, as the lungs, liver, stomach and kidneys, as well as the anasarca, promptly disappear under the influence of balneologic theraphy. Among the most notable effects of the baths was the distinct clinical evidence of an arteriodilation, as shown by the increase in the volume of the radial pulse. He laid stress upon the "resistence exercises," which form an essential element of the treatment. These require a specially trained operator. Dr. Anders reported cases which were observed by himself while they were under treatment at Nauheim through the courtesy of Prof. T. Schott. He recorded two cases of acute dilatation of the heart following chronic valvulitis, excited by over-exercise, in which complete restoration of compensation was effected as the result of the Schott method of treatment. He also reported complete relief in two cases of chronic cardiac disease with the usual form of secondary dilatation. The method was found especially valuable in arteriosclerosis with embarrassed heart action, and the special effect of the Schott method was most gratifying in cases of angina pectoris. Finally, in that large group of cases in which circulatory disturbances arise from a neurasthenic condition, happy results may be expected from a judicious employment of this now recognized mode of treatment. The metabolic processes also have been favorably influenced to a remarkable extent. Dr. Anders tabulated the contra-indications to the Schott method as follows: (1) Cases presenting fever; (2) advanced arteriosclerosis; (3) far advanced myocarditis; (4) the closing stage of chronic valvulitis, with extreme dilatation of the chambers; (5) aneurisms of the aorta or its larger trunks, except in the insipient stage; (6) in any case in which the blood pressure is lowered by the balneologic treatment; (7) cases in which a tenometric figure as low as 65 or 60 mm. of mercury is found (Schott); (8) cases in which chronic bronchitis and asthma are well marked (Baldwin).

Dr. James Tyson, in the discussion, said he had limited himself to the home use of the Nauheim baths, because in this connection there was the greatest opportunity for its employment, the expense of a trip abroad and treatment at Nauheim being impossible to the majority of persons. He does not think a bath establishment is necessary and he has used the treatment in private houses in the use of the ordinary bath room appliances.

A person is required to conduct the bathing as well as the exercises, although both may be done by the same individual. The baths, he believed, could be made very much simpler than the paper by Beasley Thorne would lead one to believe. Chloride of sodium and the chloride of calcium were stated to be the two most important constituents. Five pounds of chloride of sodium and five ounces of chloride of calcium are put into the ordinary bath of about forty to fifty gallons of water. The course consists usually of twenty-one baths, three of which are given in succession and then a day skipped.

The proportions of sodium and calcium are increased until in the last five or six baths the water contains about ten pounds of the former and ten ounces of the latter. The carbonic acid element of the bath is secured at home by adding hydrochloric acid and bicarbonate of sodium. The cases that receive the most benefit Dr. Tyson said were those of cardiac weakness with dilatation, chronic dilatation brought about gradually as the loss of compensation is brought about in valvular cases, and also cases in which there has been over muscular exertion. Acute dilatation, he remarked, is best treated by rest in bed and the use of nitroglycerin, etc. In such a case partially recovered improvement may be completed admirably by the administration of the Nauheim bath at that stage. The baths should not be given in cases of edema and general dropsy. Dr. Tyson thought the patient a pretty good guide regarding the continuance of the bath; if he did not feel well after three or four baths, it was a mistake to continue them. Better was it to put the patient to rest. The first bath he makes five minutes in length, the second, six or seven minutes, which time is increased to ten or fifteen minutes. Coincidentally with the increased duration of the bath the temperature is lowered. Eighty-two or eighty-five, he said, was the lowest temperature at which the baths are given at Nauheim.

Dr. S. S. Cohen referred to his demonstration before

the Society of the Schott treatment some eight years ago, by the efficient aid of Dr. Charlotte West, and stated that Dr. West was available for the carrying out of the Schott resistance movements, as well as four other persons whom he had trained. He thought there was no difficulty in having the baths given at home, if the patient and physician were willing to take a little trouble in getting them started, after which intelligent patients can be entirely trusted to carry out the details. In preparing he bath the plan which Dr. Cohen has adopted and which has the advantages of preventing the cooling of the water, and injury to the tub, is to fill the tub half full of hot water, put in the brine and the bicarbonate of soda; let them remain for about twenty minutes so that they are thoroughly disseminated throughout the whole mass of water; then add sufficient water which can be cold or lukewarm, according to the temperature to which the original quantity of water has cooled; then put in the acid sulphate cakes upon the tin foil and there will be a thorough and complete effervescence.

A valuable element in the treatment at Nauheim Dr. Cohen believed was the personality of Dr. Schott. His scientific spirit, his authoritative manner, thorough mastery of routine and of detail, the absolute obedience which he gets from all the attendants he believed count for a good deal. In the home treatment Dr. Cohen's plan is to give the baths in a course of six or eight weeks, interrupting them for eight or ten or twelve weeks and then again repeating them for two or three weeks; then again interrupting them, and again repeating. The best time to give them he considered to be at night so that the patient might have several hours continuous rest afterward. He gives the baths every other day or every third day, giving exercise on the alternate days, if exercise is to be given. Sometimes the baths can be followed by massage, the character of which will vary with the character of the lesion and reaction of the patient. He confirmed Dr. Anders' statement of the value of the method in exophthalmic goiter; but, also stated that there was great danger in its employment in this condition. He would not trust patient or attendant to give the treatment in exophthalmic goiter. In a few cases he believed it would do good if carefully applied and applied by the physician himself.

In cases of arterio-sclerosis, not too far advanced, he has seen very good results; also in angina pectoris, in mitral stenosis and in mitral regurgitation. He differed from Dr. Dalafid concerning the resemblance between the effect of active exercise on the part of the patient and the gentle resistance movement of the Schott system. In the Schott system there is no muscular exercise on the part of the patient at all. The moment exercise is made the patient defeats the object of the treatment. The method was, he said, "*gentle* resistance." The benefit obtained was in the starting up of the peripheral muscular pump upon the vessels so that the action of the natural rhythmical contraction of the muscles upon the vessels continued to assist the work of the heart. The carbon dioxide gave to the "skin-heart" a much more active stimulation than could be secured from massage or electricity, though the principle was just the same, the diversion of the blood to the surface and the stimulation of the vasomotor reaction.

Dr. William S. Wadsworth referred to the physiological principles underlying all treatment. In regard to the effect of the various ingredients of the bath on the stimulation of the skin and the effect on the sensory nerves, there was, he said, a very great additional effect, not mentioned, the effect on the skin itself. For example, putting a piece of skin, alive or dead, into water there was obtained a certain amount of maceration and an entire change in the feeling of the skin. If the finger is put into the water for half an hour the sensations are entirely different from those encountered from the air. All, he said, knew the difference between the sea bath and the ordinary bath. Another factor in the bath, he pointed out, was the suspension of the body in a material which is of a certain specific gravity. Putting the body on a water bed, he considered was also a very important factor. The changes of the specific gravity, he thought, would bear the closest clinical study and would give interesting results. In the resistance movements Dr. Wadsworth stated there was a series of valuable factors developed of a purely mechanical sort. On the chemical side there was another group; a chemical change taking place in the muscle itself. Certain substances were taken up causing change of tone of the whole system. Fatigue stuffs were thrown out which have a distinct effect on every organ that comes in contact with the blood.

Dr. Anders, in closing the discussion, said he was not convinced that the home treatment could be carried forward with much success. To have a suitable establishment in this country would require a specialist in heart diseases to make the treatment a special study and this one should watch the patient daily, noting the effect of every bath and every application of the resistance movements.

Influence of Hunger and Hemorrhage on the Composition of the Blood Plasma.—Dr. Thomas S. Githens stated that by the addition of sodium sulphate to blood plasma it was possible to separate the proteid into four bodies: Fibronogen, euglobulin, pseudoglobulin and serum albumin. He had performed two series of experiments to determine which of these bodies was nearest to the form in which proteid is ordinarily assimilated.

The series showed as a result of repeated bleedings a rapid and steady decrease in the percentage of fibrinogen and a corresponding increase in the serum albumin. Starvation, on the contrary, showed a marked increase in the percentage of total globulin and a corresponding fall in the serum albumin; but after feeding the percentage of albumin rose promptly to normal. Both effects are best explained by the assumption that albumin stands nearest to the form in which proteid is absorbed and therefore is replaced quickly from the food; while fibrinogen being more specialized is more difficult to replace.

On the Use of Methylene Blue in Malarial Fever.—Dr. H. C. Wood, Jr., reported six cases of malaria which were cured by the use of methylene blue. He has collected also from the literature 425 cases with 362 cures. Ivanoff has shown that methylene blue has a destructive action upon the adult malarial parasite, although it has but little influence upon the younger forms. Methylene blue may be given in malaria in doses of 3 grs. every three hours for several days. The treatment should be kept up with small doses for a period of two to three weeks. The unpleasant symptoms which have in many cases been associated with this drug the author thought were perhaps due to the use of the dyestuff instead of the medicinal methylene blue. The latter is the chloride of tetramethylthionin. Methylene blue it was stated rivals in its antiperiodic effect quinine, and has the advantage over the older drug of not causing the unpleasant by-symptoms commonly seen with quinine.

NEW YORK PATHOLOGICAL SOCIETY.

Regular Meeting, held October 12, 1904.

The President, Otto H. Schultze, M.D., in the Chair.

Trypanosoma Hominis and Trypanosoma Brucei.—Dr. F. C. Wood demonstrated stained slides of these. He gave a short discussion of the conditions under which these parasites occur, causing the diseases known as "sleeping sickness" and nagana.

Kala-azar.—Dr. James Ewing presented specimens of a case of this affection recently described by MARCHAND and LEDINGHAM (*Zeitsch. f. Hygiene*, Bd. xlvii). The sections were prepared from material which Prof. Marchand had very kindly presented to him in Leipzig. The sections showed large numbers of the protozoon described by Donovan, Leishmann and others, and which had first been found in the aspirated blood of the spleen. While very scanty in the circulating blood, they were enormously abundant in the viscera. The parasites occupied much enlarged endothelial cells which contained from ten to one hundred in section. The structure of the parasite was very distinct even in the sections stained by hematoxylin and eosin or by Nocht's method. It consisted of a macronucleus and a very densely staining micronucleus inclosed in a protoplasmic envelope from 1 to 2 micra in diameter. It was mentioned that considerable evidence supports the belief that this body represents one phase of the life history of a trypanosome.

Widal Test in Practice.—Dr. John H. Borden presented a paper on this subject, which will be published later in the MEDICAL NEWS.

Dr. W. H. Park, in the discussion, said that it seemed to him that the method described by Dr. Borden was very much easier for the physician than the old method, but he asked whether there was any difference in results with this method of using cultures killed by carbolic acid, and the usual use, in proper proportions, of live cultures.

Dr. Borden said that he had tried a few live cultures macroscopically and they reacted very well. With the method he described the physician did not have to make plants from day to day and keep live bacilli about the house. They reacted, moreover, perfectly well. Widal himself had spoken of using the dead bacilli for his agglutination test.

Dr. F. C. Wood said that he was not willing to give up what had been to him a very important phenomenon—the motility of the bacilli. The bacilli in cases of miliary tuberculosis tested in dilutions of 1-40 and 1-60 showed persistent motility, and it was this motility which differentiated such reactions from true typhoid in which motility ceased early. He asked Dr. Borden if they had had that experience at the Presbyterian Hospital.

Dr. Borden replied that they had.

Dr. Wood asked if they had tried the suspension in cases of miliary tuberculosis.

Dr. Borden said he had tried three cases of miliary tuberculosis by the gross method and did not get the reaction in any of the tubes, 1-40, after standing several hours.

Dr. Philip Hanson Hiss said that he thought Dr. Wood's objection to dead bacilli generally held with the microscopic test. Any action we might get with tuberculosis when using the gross test was not noticeable to the eye, for although we might get very small clumps, he doubted if we would get precipitates.

Dr. E. Libman said that at the Mount Sinai Hospital they had tried the Rüdiger method with formalinized cultures. It was found not to be specific. They had had several cases, not typhoid (in two cases of which there was no fever) and the test gave a complete reaction at 1-20 and 1-50. They had given up the Rüdiger method. Whether this happened when the serum was used alone, he did not know. With the Rüdiger method the blood was diluted. They had obtained microscopic reactions with both live and dead bacilli, and they had found it better to stick to the live bacilli as the results were better. They had had positive reactions with live bacilli when the reactions were absent with dead bacilli. On the other hand, one or two cases were found to give positive reactions with dead bacilli when not positive with live. He said that microscopically, when we do get a good reaction with dead bacilli, it is as a rule better and more decided than we get in the same case with the live bacilli.

Dr. Borden said that the apparent success which he at first had with the bacilli killed with formalin was very deceiving. For a long time the reaction was thought to be specific; it did not always occur in three hours, but in the course of five or six hours a flocculent precipitate would be seen coming down. Rather arbitrarily a standard of three hours was set. This was thought to be all right, but the solutions as made up may have been a little too acid and the reaction comenced to occur before the three-hour limit. Finally, after trying a great many emulsions, the method was decided to be worthless. Whether other observers use a different method in making the suspension, Dr. Borden did not know, but apparently they used about the same. He had gained the impression in reading the articles that they had not done sufficient control work to make their results convincing. He himself had done more controls than cases.

Nerve-Cells in Rabies.—Dr. D. W. Poor reported the results of some studies on the nerve-cells in a number of cases of rabies. He found very constantly in the nerve-cells bodies which have been described by Negri as characteristic of rabies. In some of the brains the bodies were very numerous, both in the cerebrum and cerebellum; in other cases they were few in number, being seen only in the Purkinje cells of the cerebellum. When very numerous they occasionally appeared outside of the cells. The bodies found were round, oval and oblong masses, the largest being 10 to 11 micra, while the smallest appeared as minute granules scarcely visible with an oil immersion lens. The bodies varied a great deal in structure. Some contained from one to a dozen or more small granules each surrounded by a circular clear space; sometimes these filled the corpuscle completely. In other instances but little structure was found except that the periphery stained more heavily at the center, giving the appearance of ring bodies. Dr. Poor was very conservative in his discussion of the nature of these corpuscles. Negri has asserted that they are protozoa. It was suggested by Dr. Williams of the Health Department, that these bodies might be degenerated red cells. It was also possible that the corpuscles might be degenerated forms of some structure, possibly the intranuclear network of the nerve-cell. The hemosiderin reaction for iron was not given. The Negri bodies were not found in the submaxillary glands so far examined, though these glands are infectious.

Dr. Poor thought that as far as he had gone he might say that the bodies were of use in the diagnosis of rabies from a clinical point of view. For diagnostic purposes tissue should be taken from the region of Ammon's horn, the cerebellum and, if possible, from the lumbar cord.

Dr. Anna Williams, in the discussion, said that on first studying the specimens the possibility of the cell inclusions being derived from the red blood-cells seemed great, but the further the study was carried, the less the possibility seemed. The majority of the forms she had seen showed such a constant, definite and characteristic structure, that it seemed almost impossible to consider them derivatives of red blood-cells. Furthermore, a few smears which she had made and stained by the Nocht-Romanowsky method, as recommended by Dr. Ewing, stained the bodies more or less characteristically and showed no evidence of their having been derived red blood-cells or of their being cell degenerations of any kind. Dr. Williams said therefore, that as far as morphological study of stained specimens alone, could help, the evidence was in favor of the inclusions being individual organisms or protoza.

Dr. James Ewing said that he had the pleasure of looking over some of Dr. Poor's specimens and that he had drawn impressions regarding the nature of the Negri bodies in the reverse order of those expressed by Dr. Williams. In the first cases examined, the very definite structure of the bodies in the ganglion cells, and the fact that they were totally unlike anything he had ever before seen in a considerable experience with ganglion cells examined under a high power of the microscope led him to think that they must be foreign bodies and probably protozoa. After seeing the specimen from the guinea-pig, in which the disease was of slow development, he had found, on the contrary, much evidence that the red cell theory suggested by Dr. Williams, was well founded, and would be a safe one to follow as a working hypothesis. It was well known that the cyanotic blue color of the cortex in rabies was pathognomonic and was referable to extreme distention of the blood capillaries of the gray matter. In the case of this guinea-pig, not only were the capillaries distended, but there was considerable diffuse infiltration of the gray matter with whole and fragmented but otherwise unaltered red cells. Many of these cells lay in the lymph spaces about the ganglion cells, and in the bodies of some ganglion cells there were found unaltered red cells. In this guinea-pig, but not in the other cases he had examined, there appeared to be numerous transition forms between red cells and the parasites.

The argument from such transition forms, however, Dr. Ewing did not regard as free from danger of error, and he had never seen any such degeneration forms of red cells in any other condition. Experience had shown that, whatever their nature, these bodies were diagnostic of rabies. The protozoon theory, Dr. Ewing thought, ought not to be hastily welcomed until other less sensational hypothesis had been fully set aside by systematic control work. He had suggested that the staining of cells isolated by teasing and dried on a slide might give some information about the bodies more reliable than that obtained by the study of sections of tissue fixed in complex mixtures of metallic salts and acids. The fact that the bodies were not found in the parotid and submaxillary glands, and that the virus of rabies passed the Berkefeld filter, seemed incompatible with the view that the Negri bodis were protozoan, and held a definite causal relation to rabies.

Pathological Chemistry of Tumors.—Dr. S. P. Beebe presented the results of some studies on the pathological chemistry of tumors. A striking fact about tumor tissue as compared with normal tissue was that there seemed to be large quantities of material stored up, the results of autolytic processes. In a case of carcinoma of the broad ligament Dr. Beebe had been able to extract from the new growth a considerable quantity of glycocoll. Other amino-acids, leucin, tyrosin, and tryptophan, were found in abundance in tumors which were undergoing degeneration, and also in one sarcoma which was rapidly growing and so far as could be seen not undergoing degeneration. Another substance which Dr. Beebe had obtained was a peculiar type of carbohydrate, in some ways resembling starch, in some ways, glycogen. It gave a color reaction with iodine like starch and was soluble in water. Some of the tumors analyzed contained strikingly large amounts of calcium salts. Others contained large amounts of potassium salts. The speaker did not wish it to be understood that the results given were in any way presented as leading to a new theory as to the cause of cancer.

Dr. F. C. Wood said that Dr. Beebe's findings of glcycocoll in the products of autolysis of the tumor cells was especially interesting to him as he had been recently attempting to isolate glycocoll from the urine of a patient with acute yellow atrophy. Leucin and tyrosin had long been known as products of liver autolysis in acute yellow atrophy. Recently Fischer had devised a new method for isolating the amino-acids and by this means glycocoll had been found in the urine in experimental phosphorus poisoning in dogs, but as yet he knew of no records of the finding of glycocoll in acute yellow atrophy. It would be natural to expect, however, that this member of the amino-acid group would be present in the urine.

Regular Meeting, held November 9, 1904.

Bile Duct Adenomata of the Liver.—Dr. Eli Moschcowitz presented a case of bile duct adenoma of the liver. The liver was removed from a patient who died at the Roosevelt Hospital on April 27, 1904. No history of the case was obtainable, but the clinical diagnosis was cerebrospinal meningitis. The autopsy was performed by Dr. Ditman. In addition to the characteristic lesions of cerebrospinal meningitis, moderate atheroma of the valves of the heart and a healing tuberculois of the right apex were present. The liver was larger than normal and yellowish-brown in color. It was uniformly studded with small nodules, gelatinous in appearance and varying in size from the head of a pin to that of a split pea. They were very soft, sharply defined, with no definite encapsulation, and fine prolongations could be seen passing into the liver substance. The organ otherwise showed slight fatty degeneration. Microscopical examination showed an adenomatous structure, the alveoli being round, oval, or tortuous in character. They were lined with low cuboidal epithelium with a large round nucleus, in various stages of degeneration, particularly on those alveoli situated in the central part of the nodule. The lumina of the alveoli were filled with a finely granular or hyaline mass, staining evenly with eosin; but in a few instances were filled with masses of desquam-

ating epithelium. The alveoli were enmeshed by dense masses of connective tissue which was fibrillar and non-cellular in the central part but very cellular toward the periphery. The cellular structures of the latter consisted of round cells and many newly formed bile ducts as are ordinarily seen in cirrhosis. These bile ducts in many places could be traced from the various stages of simple canals with no lumen to the cystic changes already described. There was no capsule, the nodules lying directly against the liver substance. There were but few blood vessels. A marked characteristic of these nodules was their intimate relation to Glisson's capsule. The normal bile ducts of the liver showed no changes. In occasional sections the lumen of the portal vein was found to contain large cells resembling in many respects liver cells. There was very little diffuse cirrhosis and the liver cells showed no changes except a moderate fatty degeneration. The picture as a whole was that of an adenomatous hyperplasia of the biliary ducts. The cases in the literature of this character were very few and resembled the one reported in almost every particular, except in the size of the new formations. The livers as usually described were riddled with cystic formations varying in size from a cherry to a child's head. So far as Dr. Moschcowitz could ascertain his case was unique in the number and the uniformly small size of the tumors. The interesting point in connection with the case was their pathogenesis—as to whether the tumors were inflammatory in character or were new growth. Dr. Moschcowitz had at first inclined to regard them as new growths, but after fuller observation had come to the belief that they were an evidence of inflammatory hyperplasia. While it could not be definitely proven that they were not new growths in the strict sense of the term, nevertheless there were many features present that strongly suggested an inflammatory origin. While there was no very extensive cirrhosis present, there was a distinct proliferation of new connective tissue in Glisson's capsule with the formation of new bile ducts such as we often see in cirrhosis. Furthermore, one could easily trace the different stages, from that of the newly formed bile ducts to that of the mature and well formed alveolus. A further evidence of a progressive inflammation lay in the slow transition from the cellular fibrous tissue in the periphery to the advanced and fibrillar connective tissue in the center. The whole picture represented a centripetal process rather than a centrifugal process such as we would expect in a new growth formation. In certain areas, old and degenerated liver cells could be found in the central part of the nodules. This might also be construed as an evidence of old inflammatory changes similar to those found in cirrhosis. There was no evidence of encapsulation as we might expect in non-malignant new growths and as is invariably found in all other adenomata of the liver. An additional evidence that the lesion was an inflammatory one lay in analogy; there was a great similarity in the microscopical picture to that of other inflammatory tumors of the liver, namely, coccidiosis. The majority of observers have regarded these nodules as new growths, but as only the advanced stages have been described this may account for their being so regarded. In an early specimen the inflammatory changes would perhaps be far more apparent than in the advanced stages in which this condition is usually seen. The cause of the dilatation of the newly formed bile ducts was hard to trace. Unfortunately, the history was not obtainable in this case, wherein there might have been found some evidence of an old inflammatory process. A distinct history of jaundice had been observed in a few of the cases described. Dr. Moschcowitz thought there was a possibility of there having been a cholangitis or some other form of obstruction of the biliary passages.

Photomicrographic Apparatus Using Ultraviolet Light.—Prof. S. Czapski demonstrated the new apparatus for the use of ultraviolet light for photomicroscopic purposes as manufactured by Carl Zeiss, of Jena. Prof. Czapski first discussed the methods which have been used up to the present time to increase the efficiency of the microscopic objective. He showed that the resolution was dependent upon the aperture and upon the wave length of the light used in the objective. The ordinary objective uses a light of a wave length of about five hundred and fifty millionths of a millimeter. Attempts which had been made to increase the resolving power of the objective by the use of glass of a higher refractive index combined with an immersion fluid of high-refracting power had resulted in the production of an objective of an aperture of 1.60, using monobrom-naphthalin as the immersion fluid. The difficulty of obtaining mounting fluids of this high-refracting index has greatly limited the use of such objectives so that at the present time this means of increasing the aperture of the objective may be considered as having reached its limit. The other method of improving the resolving power of the objective is to use light of a shorter wave length. It has been found possible by the use of quartz lenses, quartz condensors, and quartz slides and cover glasses to obtain an objective the aperture of which by ordinary light, is 2.5, through the use of monochromatic light of the ultraviolet region, whose wave length is two hundred seventy-five millionths of a millimeter. The resolving power of these objectives which possess a numerical aperture of 1.25 is practically twice that of the ordinary apochromatic immersion lens.

The ultraviolet rays are obtained by an electric spark passing between cadmium electrodes. The spark spectrum of cadmium gives a series of strong lines of a wave length of two hundred seventy-five millionths of a millimeter. The light derived from the spark passes through two quartz prisms in order to select this particular group of rays, and is then brought to a focus by a condenser, also of quartz. The light then passes through the object to be photographed, is collected by the objective of the microscope and the image thrown on a photographic plate by means of a quartz eyepiece.

Inasmuch as rays of this short wave length are not visible to the eye, no light in the ordinary sense passes through the microscope. The rays can be rendered visible only by the use of a fluorescent screen inserted in the eyepiece. When the image so formed is observed a picture can be seen, the details of which are very imperfect. An approximate focus is then obtained, the camera is swung into place, and the photograph taken. If the focus be correct no further procedures are necessary. If, however, the picture does not appear sharp the focus is slightly changed and a second exposure made. If this is not so good as the first the focus is changed lightly in the other direction, etc.

The mounting fluids which can be used are those which are transparent to ultraviolet light, for example, water, glycerin and a saturated solution of chloral hydrate in glycerin. Prof. Czapski demonstrated a number of photographs taken by means of this apparatus, which showed very remarkable results. Especially striking were photographs of yeast-cells, which showed

structures not visible under ordinary conditions; a photograph of a transsection of a frog's eye, showing that the lens, while transparent to ordinary light, is opaque to ultraviolet light; and also some characteristic photographs of *Pleurosigma angulatum* at a magnification of twenty-five hundred diameters, which showed structures entirely different from those obtained with ordinary objectives.

Vaccine Bodies.—Dr. James Ewing spoke of a new method which he had devised for the differential staining of vaccine bodies in isolated cells, which he designated the "Klatsch" method. The slide used was washed in soap and water and then heated in a Bunsen flame, after which it was found that cells adhered to it very easily. Such a slide was lightly applied to a cornea representing any stage of the vaccine lesion and quickly withdrawn without any pressure or lateral motion. The slide when examined was found to have carried the impression of the lesion in the form of isolated cells which have been loosened by the edema of the inflammatory process. Repeated impressions will completely evacuate the ulcer. The cells dry instantly in the air and may be fixed and stained by the same procedures as are used in the study of blood. The best stains are obtained by fixation in 95 per cent. alcohol for ten minutes and staining by Nocht's method for ten minutes. By this means the structures and relations of the epithelial cells are much more easily made out than in sections of hardened tissues. The method had been applied to vaccine lesions in rabbits and rats. Rats are more susceptible to vaccine than rabbits and the vaccine bodies in these animals are usually larger than in rabbits. The first trace of the vaccine body, in "Klatsch" preparations, appears as a thickening and dark-red staining of several adjoining meshes of the cyto-reticulum. This area is usually found near the nucleus, but in superficial cells and in some deeper ones it may lie at some distance from the nucleus. By a gradual extension of this reticular structure almost the whole of the cytoplasm may be transferred into the vaccine body, while the nucleus, without showing signs of compression lies to one side of the cell. During these stages the reticulum of the vaccine body appears to be directly continuous with the cyto-reticulum. In rabbits this cyto-reticulum is finer than in rats and a similar difference appears in the reticulum of vaccine bodies in these two animals. The majority of vaccine bodies in isolated cells show definite connections with the nucleus. In many cases it is difficult to determine where the vaccine body begins and the nucleus ends. The staining reactions of the body also indicate that it contains chromatin. The meshes contain a homogeneous basophile material. After full development of the recticular structures two series of changes appear in the vaccine body: (1) The reticulum breaks into granules chiefly affecting the periphery; (2) basic straining material appears in the center of the vaccine body and the gradual increase of this material at the expense of the red reticulum transforms the body into a homogeneous mass which has the basic staining reactions and the appearance of mucus. The englobement and destruction of one epithelial cell by another is readily followed as is phagocytosis of leucocytes. Besides vaccine bodies other forms of perinuclear cytoplasmic degeneration may be found. In the cornea there are often large numbers of granular or ring-shaped structures from one to two micra in diameter, the nature of which it is difficult to determine. The larger ones look like early ring-shaped malarial parasites and possess chromatin granules, or they may be elongated into rods like bacteria. The smaller members of the series cannot be distinguished from cell granules which cover the superficial cells. While the structure of vaccine bodies in "Klatsch" preparations offers strong evidence against the protozoon theory of vaccinia, there remain several hypotheses on which it may still be claimed that this body harbors the organized virus of vaccinia. It may be supposed that while the visible vaccine body is a cytoplasmic structure, yet it contains a submicroscopic organism. Or it may be supposed that the vaccine body represents a mixture of the protoplasm of the host cell and the parasitic organism, forming a mycoplasm, such as is believed to exist in wheat-rust by Ericksson and Tischler, in a disease of grape-vines, known as La Brunissure, by Debray, and in crown-gall, by Toumey. But the mycoplasmic theory has not been demonstrated even for plants and the late stages of vaccine bodies show less and not more structure than the early stages. Or, it is possible that some other method of fixation and staining than the one employed in this study may yet succeed in demonstrating some definite protozoon structure or character in the vaccine body. Since more or less specific forms of cell degeneration occur in various infectious processes, it does not seem likely that the vaccine body can be reproduced by another agent than vaccine, and accumulating evidence goes to show that this body is specific for vaccinia and the diseases closely related to it.

Cerebral Lesions.—Dr. Charles Norris presented a series of specimens showing the effect of cerebral lesions. The first specimen was a brain from a woman who died at Bellevue Hospital. Four days before admission to the hospital she had had an attack of partial unconsciousness. The muscles had become rigid and she had fallen to the floor. When picked up she was found to be paralyzed on the right side of the face and in the right arm. She also had motor aphasia. The leg was uninvolved. In the course of several days she was able to walk around and slowly recovered motion in her right arm but never in her face. She never recovered the ability to talk, though she regained almost complete use of her arm. Three weeks after the first attack she had another attack from which she did not recover. The right side of the face was partly paralyzed. She passed without warning into a semi-stuporous condition. The heart action was very slow and slightly irregular. She died about six weeks after the first attack. At autopsy the heart showed chronic mitral endocarditis with stenosis and recent vegetation. There was general congestion of all the viscera. On opening the skull there was complete cystic softening of the precentral convolution, which had practically disappeared except in the upper part, where the leg center is situated. The postcentral and the whole of the third frontal convolutions were likewise softened. The areas of softening involved the first temporal and extended into the supramarginal, but the angular gyrus. Here the softening was less marked. After the second attack in the hospital the patient had been unable at any time to read. She apparently did not understand what was said to her. She had sensory aphasia. It was hard to understand why she had recovered motion in her arm so quickly after the first attack when there was total softening of the arm center in the central convolution.

The second specimen was a carcinoma of the brain following carcinoma of the breast. Very little history had been obtained in this case. The patient had been operated upon elsewhere for the tumor of the breast and successfully, but she had re-entered the hospital for a recurrence. She was thought to be insane and was transferred to the psychopathic ward at Bellevue. She was in a very confused state of mind and had a

paralysis of the right side. At autopsy the growth was found to involve the motor centers of the arm and leg.

The third specimen was from a case of cerebral embolism. The patient was a man who had been six weeks in the hospital. He was apparently in a very stupid condition during most of the time and after four weeks suddenly became comatose. He had hemiplegia. At autopsy the brain showed an area of cystic softening involving the Island of Reil, the claustrum, the external capsule, and the lenticular nucleus. The origin of the embolism was undoubtedly in the aorta, this being the seat of marked thrombo-arteritis. The valves of the heart were fairly normal.

A Case of Dermatobia Noxalis, with Demonstration of Larva.—Dr. Harlow Brooks presented specimens from a case of *Dermatobia noxalis*, the cases of human infection being so rare as to warrant his calling attention to this instance. He was indebted to Dr. Gillette for the specimens. The patient had been for some time in Panama, where his general health had been good until about six weeks ago, when he first noticed three small lumps, one in the groin, one on the flexor surface of the forearm and the third over the left shoulder. The patient declined surgical attendance on account of insufficient hospital facilities and returned to this country for treatment. Examination showed at the apex of each tumor a small perforation through which a small, moving, black body could be made out. The pain caused by the swellings was considerable and there was a slight rise in temperature. The tumors were opened under cocaine and the worms squeezed out. The largest larva was two cm. long and nine mm. in breadth. There was a considerable collection of pus in one of the tumors, but all of the wounds healed rapidly. Examination of the blood showed a quite marked increase in the eosinophiles. Dr. Brooks said that the larvæ had been frequently seen in the skin of various animals. He had seen it in the skin of the semidomesticated buffalo and in the skin of wild prairie dogs and wild deer. There were some sixty-four different varieties of the bot-fly and consequently sixty-four varieties of the larvæ, and he could not say to just what variety this specimen belonged. Thirteen varieties had been found to infect the skin and many of these had been seen in man. Dr. Brooks showed also a parasite from the skin of the buffalo which differed from the human parasite in the arrangement of the spines. He said that he had been told by travelers in South America that the infection there in man was fairly common.

Dr. James Ewing, in the discussion, said that he was very glad to see the specimen presented by Dr. Brooks and especially to learn the name of the parasite, as it cleared up the identity of a similar parasite which had been sent to the Cornell Laboratory by Dr. Alexander Lambert. This specimen was identical in appearance with the one shown by Dr. Brooks and was removed from a patient who gave much the same history and had recently come from Panama.

SOCIETY OF THE ALUMNI OF CITY HOSPITAL.

117th Stated Meeting, held December 14, 1904.

Tuberculoma.—Dr. Joseph F. Terriberry presented a patient who gave the following history: Russian Hebrew, about thirty-five years of age, who for the past twenty years had been a sewing-machine operator. Very recently the left testicle was removed because of tuberculous degeneration. He was in bed thirty-three days after this operation. Prior to the operation both legs had apparently been normal; he had, at least, noted no difficulty in walking, nor had he experienced any subjective symptoms whatsoever. When he became convalescent, he noticed that the left leg was tremulous and somewhat stiff. His objective symptoms showed a diminished pain perception in the left foot and an entire absence of heat and cold perception over the same area. Tactile sensation was at this time normal. All the symptoms, both subjective and objective, not alone gradually increased in severity, but ascended the extremity at a very rapid rate. Dr. Terriberry demonstrated that pain sensation was abnormal up to a line just below the umbilicus, and showed the overlapping of perception from above down and from below up. He considered it probable that in view of the symptoms, and of the history, the patient was suffering from a tuberculoma situated in the left side of the cord at about the level of the lumbar segment. This hypothesis is further supported by a marked reaction of the patient to tuberculin injection.

Dr. Morris Manges thought that a possibility of the existence of a syringomyelia in the lower regions of the cord combined with insular sclerosis should be gravely considered, but he agreed with Dr. Terriberry that in all probability the case was a suitable one or would soon become a suitable one for operative intervention.

Pott's Disease.—Dr. J. P. Fiske presented a patient who exhibited an irregular and interesting form of Pott's disease. He had had none of the typical signs of this lesion, but a cyst had appeared in the neighborhood of the eighth costovertebral articulation. This had been opened by a hospital surgeon and appeared as a discharging sinus. When the patient came under Dr. Fiske's care, considering that it probably was a case of necrosis of the rib, he opened the sinus tract up but found the rib normal, the tract disappearing between the vertebræ. The part was disinfected and closed. A noteworthy fact was that it healed by primary intention. The doctor had ordered rubber heels and had put the patient in a very light and beautifully constructed celluloid jacket.

New Instrument.—Dr. George B. McAuliffe presented a new form of adenoid forceps, which were especially designed to protect the uvule and soft palate from injury during operation.

Papillomatous Ovary.—Dr. Brooks H. Wells recited the history of a woman, aged fifty-one years, from whom he had removed a papillomatous ovary. The specimen was thought to be malignant at first, but slides exhibited by Dr. Brooks for the Society showed a fully developed non-malignant tumor.

Gouty Diathesis.—Dr. Charles C. Ransom read a paper in which he related the history of the studies of the so-called "gouty diathesis" and showed in this sketch the gradual evolution of the present conception of the importance of uric acid as a causative factor for gout. He concluded, both as a result of his studies with Herter and from clinical observations in a great many hundred cases, that no time should be lost in discrediting the erroneous and generally accepted view that uric acid has a relation to gout. (This paper will appear in full in a subsequent issue of the MEDICAL NEWS.)

Dr. Morris Manges, in opening the discussion, dwelt on the enormous complexity of the topic and of the confusion of the widely differing views. He alluded to the interesting fact that hogs often develop a form of gout. He said that the existence of the quadri-urate has never been positively proven;

that the modern view that uric acid is a product of nucleinic acid is probably correct; that no short statement sums the subject up so well as that expressed by Herter who states that in accepting uric acid as the cause of gout we "attribute to ash the quality of flame." He spoke of the clinical importance of nervous symptoms in gouty patients and quoted Sydenham as saying that "a fool never had the gout." In conclusion, he said that there were evidently no true diathetic and diatetic causes for gout.

Aural Affections in Children; Necessity of their Early Recognition by the Family Practitioner.—Dr. Jarecky, after speaking of the frequency of ear diseases in children, said that they should be divided into two types, inflammatory and non-inflammatory. It is an interesting clinical fact that very severe ear disturbances occur in children without any extensive signs of pain, consequently very frequent examinations should always be made when a child is suffering from any of the acute infectious diseases. He concluded that early paracentesis should be performed and that because of the probability of early pus formation in children it should be done earlier and even more thoroughly than in adults. (This paper will appear in full in a subsequent issue of the MEDICAL NEWS.)

Dr. G. B. McAuliffe discussed the relation of the development of the temporal bone in the infant to the causation of mastoid diseases, and concluded that the middle ear was so built that the drum was not in the direction of the least resistance, but that this weaker area was rather toward the mastoid. The infantile drum is highly resistant and the imperfectly closed sutures allow of meningeal infection in the infant much more readily than in the adult. Sixteen per cent. of Chicago children have aural disturbance. He agreed with the writer of the paper that paracentesis should be done early. Inasmuch as there is only $\frac{1}{200}$ of an inch from the stapes to the wall the slightest adhesion only is necessary to interfere with the motion of this bone.

Dr. Jarecky, in closing, said that subsidence of symptoms, particularly in children, must not be expected at once after paracentesis.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Regular Monthly Meeting, held November 26, 1904.

The President, Augustus H. Knight, M.D., in the Chair.

The scientific business of the evening consisted of the reading of a paper by Prof. Theobald Smith, of Harvard University, upon the place of research in the University Medical School.

Research and Medicine.—Dr. Smith said that the laboratory as a part of the teaching of medicine has come to stay. Experiments upon animals make observations more definite and remove many of the uncertain elements in the problem of the causation and the treatment of disease. Modern medicine has gained much by the vivifying touch of modern biology. Research was formerly sporadic, but now there is a definite tendency to organize training of research workers. This tendency is well recognized, and represents undoubtedly one of the best features of modern university life. It takes the question of progress in medicine out of the realm of chance or hazard, and makes the possibilities for discovery much greater than they were before. Laboratories have done very much for medicine, if it is only considered what comparatively short time the regularly equipped laboratory has been in existence.

Laboratory Development.—The first regularly organized laboratories for the study of disease were those founded and maintained by the United States Government. This is a fact not generally recognized, but of which there can be no possible doubt, and it represents one of the very commendable phases of governmental development in this country. After those in this country came the laboratories of the present institute for infectious diseases in Berlin, the Pasteur Institute in Paris, and then those of other countries. Most of the foreign laboratories were founded with definite ideas of practical work to be accomplished by them. Not long after their foundation, however, their scope was widened so as to have them include the study and investigation of fundamental problems in medicine, and, of course, also in the related biological sciences. It was soon realized that research workers must be spared the details of the medical art. Indeed, the class of mind best fitted for research is quite different from that which is likely to be successful in practice. Nearly the same kind of mind is required for successful investigations in medicine as for new inventions in the arts and in mechanics. The American success in these departments is an earnest of how much may be accomplished in the neighboring field of original research in medicine.

Necessities for Research.—The first and most important need for the research worker is that he shall have a living wage and tools and a workshop. It must not be expected that his discoveries shall have an immediate practical value. As a matter of fact, many great discoveries have been made long before their practical applications were found, and very few important discoveries have come at a time when science and art were ripe for their use. If the practical application of discoveries be too much insisted on, then ill-advised hurry in investigation inevitably results, with disappointment at the consequence, and even the discoverer himself becomes discouraged after a time. Examples of the harm that has been worked through the development of medicine in this way are not wanting, even with regard to the greatest of medical investigators. The research worker must have a calm attitude, and must learn to look at things dispassionately, estimating them only according to their significance in his chain of reasoning. It seems undesirable that the research worker should be expected to combine anything of the health officer or the physician with his work. These men, in close contact with suffering and death, see the most complex problems of human mortality in all their poignancy, and so are drawn by sympathy away from the simpler observation that might prove the beginning of great discoveries. There is a growing reformation in this country, but much yet remains to be done. There is an immense amount of information that medical students are expected to acquire, and it is sometimes thought that just in proportion to their knowledge of the previously known are they likely to make new discoveries. It must not be forgotten, however, that knowledge stifles the originality of the ordinary mind, and that the accumulation of facts is only desirable because, later, when the real discoverer comes, he is able to recognize the thread of thought running through all the facts that looked quite distant from each other before.

Teaching and Research.—It has sometimes been thought that there is a definite relation between teaching and research, and that it is only the teacher who realizes best the limits of knowledge, while it is only the man who is devoted to original research himself who is able to indicate the present position and the possibility of medical information on points where knowledge is advancing. It is one thing, however, to discover and quite another thing to apply facts and observations. It is the main task of the medical school to train physicians in the practical application of principles of medicine. There is just as much objection to the original investigator having to devote most of his time to such training as to his being a physician directly. Laboratories are meant to give such training, but the director of a laboratory need not necessarily occupy himself much with research unless he has the enthusiasm for it, and time is allowed him for the purpose.

Place of Laboratory.—The laboratory is meant to illuminate facts. Its place in education is for the training of the senses, and in the use of instruments of precision. At the present time there is a distinct reaction against book-learning and the lecture system, which, like all movements in human affairs—especially education—is likely to go too far. As the result of this a superabundance of laboratory work may lead to great waste of time in the learning of mere technic. It must not be forgotten that a servant in the laboratory may sometimes see things that a physician misses, or that a butcher may recognize anatomical peculiarities without any knowledge of anatomy, yet neither of these men is a trained physician. The training of the senses is not the only thing necessary, for the scientific observer must know what he is looking for, and must be able to see the relationship of things observed.

Universities and Research.—The university must encourage researches, hence it must have teachers who are investigators. It must provide stables for animals, so that medicine may be studied by comparative methods as well as in hospitals and clinical laboratories. It is only if the university is engaged in research that teachers are able to judge of the true significance of medical progress. As the result of the disturbance of knowledge, much froth of apparent medical advance may be thrown up, and only the trained investigator can appreciate the insignificance of this. Medical teaching must not as a rule include ideas that are too new, or it will also include many that will eventually prove to be false. An income is needed for research work, however, and without this it becomes impossible. It is better to have no pretense of original investigation than to have poor research workers. How much may be accomplished by research can be realized by the fact that in recent years pathology has become a part of surgery to the great benefit of this practical department of medicine.

Endowments have Created a Trust.—The giving by wealthy men of endowments to university medical schools has created a trust for the benefit of the present and future generations. Hence the necessity that all the information obtained by men working under such a trust should become common property. This is, however, of the very essence of professional work. The physician has learned to give in charity his time and his talent. The university owes it to the public to bring about a development of preventive medicine and of sanitary science. At the same time, if the public is taught to appreciate these advantages, it must be made to recognize the value of the services given by health officers who must, only too often under the present conditions, accept scanty pay. It is among the intelligent classes in the community that renewed interest in sanitary science must be awakened, and this task is worthy of the best men and the best schools of medicine.

Prophylaxis.—The future of medicine will consist much more in prophylaxis of disease than in the treatment and cure of serious affections. Physicians will be sought out before serious disease has begun to make its ravages, and their main duty will be prevention rather than cure. Under these coming conditions undoubtedly the physician will be better paid for his labor than at the present time, when, of course, it is distinctly understood that except for the few very successful professional men, the burden of duty is far ahead of the rewards that come to the medical man. In this last phase of their work, that is, in creating popular sentiment and in educating the general public, a principal duty of the university that has not yet been sufficiently recognized, is involved.

BOOK REVIEW.

PHYSIOLOGICAL ECONOMY IN NUTRITION. An Experimental Study. By RUSSELL H. CHITTENDEN, Ph.D., LL.D., Sc.D., Director of the Sheffield Scientific School, Yale University. Frederick A. Stokes Company, New York.

WHAT to Eat—not as the title of an attractive monthly periodical with photographic reproductions of tempting dishes—but as a problem for the masses and the nation—this is the question taken up by Dr. Chittenden and answered in a manner satisfactory to the test tube, balance and calorimeter, if not to the hungry stomach.

That we all eat too much is well recognized—too much for our own good and more than is necessary to keep well and strong. Yet the question of how much is necessary has been answered by many in numerous ways and according to varying standards. Cults even are founded and maintained on the warmth of dietary discussion, and restaurants and sanitaria prosper as exponents of the only "right living."

The truer answers that science has to offer have proven cold comfort for the aching void of the hungry boy and his descendant, the average man.

In the present series of studies, however, we find enough information to give comfort to the father of large families. He cannot be accused of being a brute and starving his family, even if the children go hungry, for science has decreed that at least one-half of the amount of proteid food ordinarily consumed is more than sufficient for the bodies' needs. The simple life at the family board is after all the road to wellbeing, and economy in diet is certain to bring economy in time—from the better health of the family and an increase in the earning capacity of the workers.

We most seriously commend this work to all physicians. It is timely, full of good experimentation, and the conclusions, if put into practice, would mean a great improvement in the health and wealth of the American people.

BOOKS RECEIVED.

REPORT OF THE SURGEON-GENERAL OF THE UNITED STATES NAVY. 1904.

NORMAL HISTOLOGY AND MICROSCOPICAL ANATOMY. By Dr. J. S. Ferguson. 8vo, 738 pages. Illustrated. D. Appleton & Co., New York.